THE MONEY MONEY MONEY ISSUE

MAR/APR 2025 ▪ FLUSH WITH CASH

WIRED

IT'S A RICH MAN'S WORLD

CEOS, CRYPTO SCHMOES, AND SOLAR BROS

BIOCERAMIC
MOONSWATCH
COLLECTION

MISSION ON EARTH *POLAR LIGHT*

OMEGA
×
swatch

Only available in selected Swatch Stores

BIOCERAMIC
MOONSWATCH
COLLECTION

MISSION ON EARTH *DESERT*

OMEGA
×
swatch

Only available in selected Swatch Stores

The future of cool,
comfortable sleep is here
Sleep up to
15°
Cooler on each side†
Options shown.
Meet the NEW ClimateCool™ smart bed.
The only smart bed in the world that actively cools and effortlessly adjusts to both of you.*
It cools up to 20x faster than a leading competitor.‡ So you sleep comfortably all night.
sleep number®
visit sleepnumber.com/wired | 1-877-316-3922
*Based on use of temperature features and our proprietary Responsive Air® technology. ‡Based on sleeper microclimate temps before and after activating max cooling in Climate™ series vs. in a leading competitor's product. †Based on internal microclimate testing.

Follow the Money

WHENEVER I GET a new job, the first thing I do is call my dad. And the first thing he asks me is: How much are they paying you? The man's obsession with dollars and cents is lore in the Drummond family. But his zealous interest in the size of my paycheck is for very good reason: Money runs the world, after all, whether *you* have any or not. So, Mr. Drummond figures, you may as well try to make as much as you can.

My inherited pathologies aside, WIRED's interest in money is as obvious as it is enormous: We cover an industry awash in trillions of dollars, and that industry just so happens to be shaping everything about the way we all live. But who exactly has that money? How are they wielding it? And what does that mean for the rest of us? To find out, we dispatched some money-eyed WIRED reporters to far-flung locales: From the United Arab Emirates to Denmark to Washington, DC, to freaking Florida, we cast far and wide to bring you some uniquely WIRED stories documenting wealth and power across the planet.

Finally, a group of editors sat down to assess our lineup. And we noticed something, as we flicked through the drafts and infographics. Wherever in the world we'd sent a reporter, whichever corner of the technology landscape we were covering, the holders of all of that money? Men. All of them. Every. Single. One. Bill Gates, who sat down with Steven Levy to talk about his new memoir (p. 64), has enjoyed 19 of the last 30 years atop the list of the world's richest people. Of the 30-odd crypto investors in Trump's inner circle, all of them are—wait for it—guys (p. 10). Even the young people hustling door-to-door in the Sunshine State, shilling solar panels in a desperate bid to become millionaires by 30, are, well, men (p. 26).

So let me be the first to point it out: There is more testosterone in this issue than the last decade of People's Sexiest Man Alive editions combined. In part, that's a reality borne of circumstance: 87 percent of billionaires around the world are men, and women continue to be vastly, outrageously outranked in executive positions within the tech industry. None of that even begins to account for racial diversity, which paints an even bleaker picture. And it's one likely to continue apace, as tech giants like Meta and Google chip away at their DEI investments. Meanwhile, the online manosphere—newly emboldened by President Trump and his First Buddy Musk—continues to metastasize in scope and influence.

But I'll take ownership too. At WIRED, it's our failure of editorial foresight and imagination to have seen the obvious—the blatant, persistent masculinity, page after page—only at the last minute. To not have, earlier in our assigning process, decided to interrogate the fraught and fractured gender dynamics of wealth accumulation, of corporate influence, of power. All of which still, infuriatingly, belong nearly exclusively to people with penises, with boardroom-commanding baritones, and with a centuries-long head start.

Don't get me wrong: You'll enjoy this issue, both in print and online. We hope you learn a thing or two about how the big bucks in tech are being amassed and spent, and the people—the men—amassing and spending them. But from one woman in charge to all the guys out there, including those featured in our pages: It might be a rich man's world for now, but trust me, women like money too. And we're coming to take some of yours.

—KATIE DRUMMOND
Global Editorial Director

p.26
A Place in the Sun
The Spectacular Burnout of a Solar Bro
by Brendan I. Koerner

p.36
The 'Crazy Guy' Who Bet on the iPhone Three Years Before It Existed
Or: When Masayoshi Son Met Steve Jobs
by Lionel Barber

p.42
The Sheikh's Gambit
Wheelings and Dealings of a Middle Eastern Spymaster
by Bradley Hope

p.54
Sugar Daddy
Inside Novo Nordisk
by Virginia Heffernan

p.64
The Rich Origins of Bill Gates
Confessions of a Billionaire
by Steven Levy

VICTOR JEFFRIES (KATIE DRUMMOND)

Issue 33.03

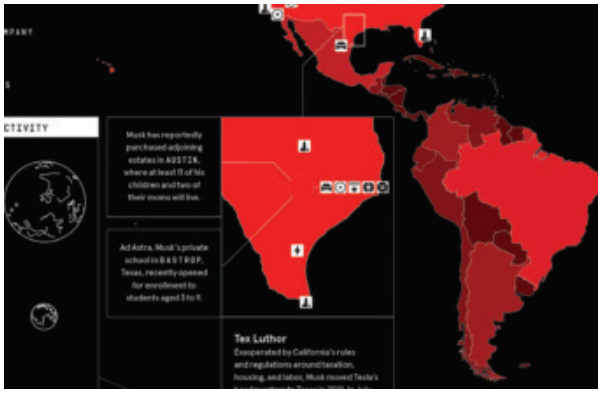
p.72

On the Cover

For our **"wealth of man"** cover, we asked the artist **Katie Martin**: What says *man* without showing actual dudes? (There are enough of them in this issue.) We considered—and quickly scrapped—sperm, a hot dog, that sort of thing. Then our senior designer **Jacqui VanLiew** practically shouted: "Men use urinals!" Martin ran with it. And, of course, made it gold.

Rendered by Eddie Guy

p.12



p.18

Start

p.7 Memecoin of the Realm
by Joel Khalili

p.10 Trump's Crypto Cabinet
by Joel Khalili

p.12 Elon's World
by Elana Klein and Anthony Lydgate

p.14 YOUR NEXT JOB
God Help the Designer Babies
by Emi Nietfeld

p.16 MACHINE READABLE
HTML Is the Fabric of Reality
by Tim Carmody

Gear

p.18 Cheap Thrills (Well, Two to Three Figures)
by the WIRED Gear team

Feature

p.72 The Hunt for the Worst School Swatter in US History
The school shooters were fake. The terror was real. How one teen went on a nationwide rampage of deception, and one private detective tracked him down.
by Dhruv Mehrotra and Andy Greenberg

Six-Word Sci-Fi

p.88 Very Short Stories
by WIRED readers

CLOCKWISE FROM TOP: IAN ALLEN, CHRISTOPHER MITCHELL; JACQUI VANLIEW; FLOURISH/WORLD BANK OFFICIAL BOUNDARIES; KATIE MARTIN

20 BIG STOCKS + 1 SMALL TRADE

TOPT

With the **iShares Top 20 U.S. Stocks ETF (TOPT)**, you can get access to big stocks like Apple, Microsoft, and NVIDIA in just one tap.

Search for **TOPT** in your trading platform.

iShares®
by BlackRock

See iShares.com to view a prospectus, which includes investment objectives, risks, fees, expenses and other information that you should read and consider carefully before investing. Risk includes principal loss.

Concentrated funds can underperform or be volatile. Distributed by BlackRock Investments, LLC.
iCRMH1024U/S-3961015

Weights in the S&P 500 Top 20 Select index as of 09/24/24: AAPL: 15.96%, MSFT: 14.89%, NVDA: 13.13%. Subject to change.

THE 9TH ANNUAL LOVE ROCKS NYC

03/06/25
BEACON THEATRE

Benefiting GOD'S LOVE WE DELIVER®

Presented By Bloomberg Philanthropies

Title Sponsors

RJKB FAMILY CHARITABLE FOUNDATION

Secunda Family Foundation

Gold Sponsors

JTMAGEN

JEFFREY ALTMAN

GRAMERCY TAVERN

THE CAMPBELL RIBBECKE FAMILY

RWE

Silver Sponsors

Daily Provisions

THE LEVINE FAMILY

SHAKE SHACK

display corp.

GREG WILLIAMSON AT DOUGLAS ELLIMAN REAL ESTATE

Media Sponsors

CONDÉ NAST

iHeartMEDIA

Q104.3 NEW YORK'S CLASSIC ROCK

THE WALL STREET JOURNAL

loverocksnyc.com ★ #LoveRocksNYC

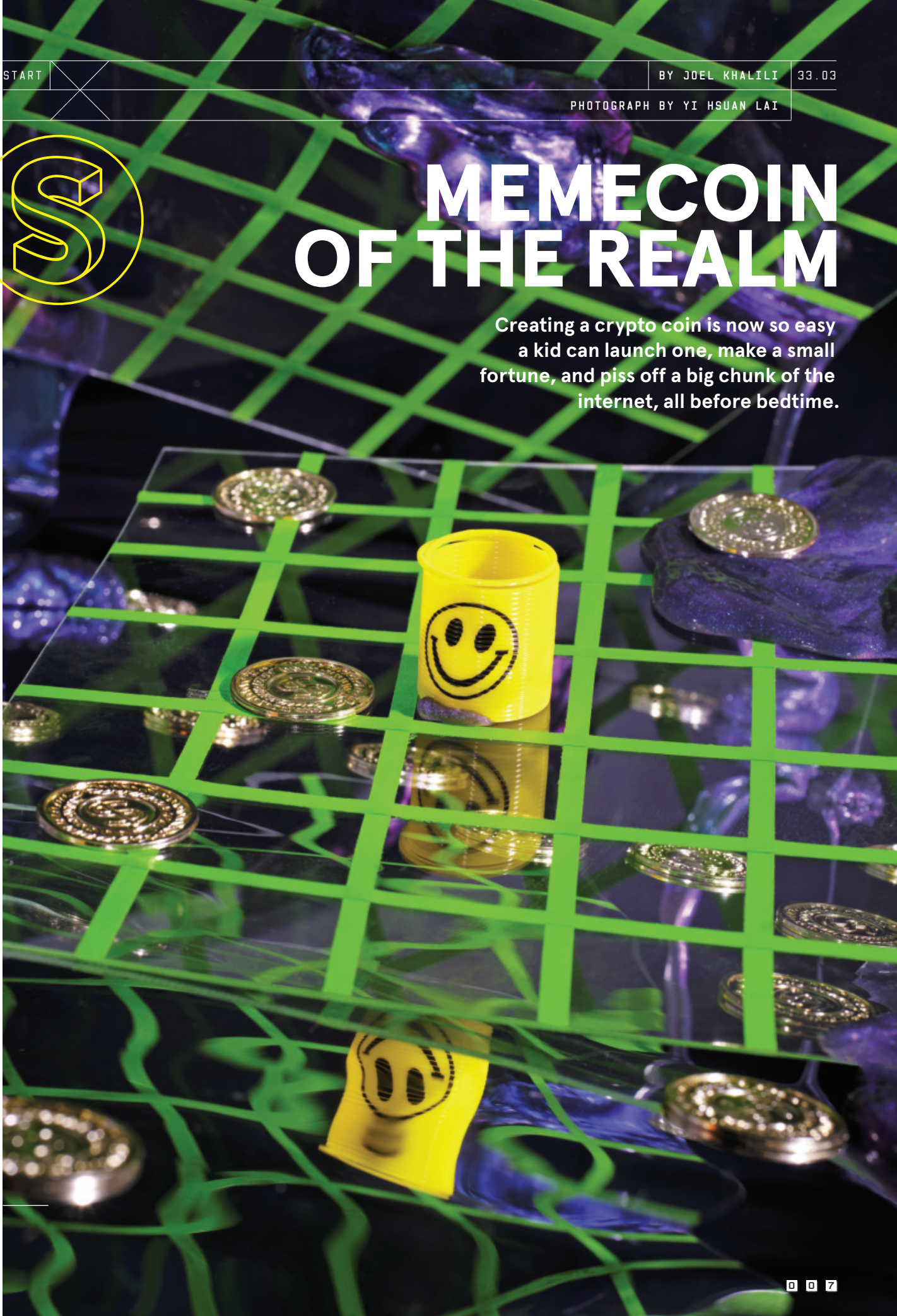
Produced By Nicole Rechter/Greg Williamson/John Varvatos

BY JOEL KHALILI

PHOTOGRAPH BY YI HSUAN LAI

MEMECOIN OF THE REALM

Creating a crypto coin is now so easy a kid can launch one, make a small fortune, and piss off a big chunk of the internet, all before bedtime.



ON THE EVENING of November 19, art adviser Adam Biesk was finishing work at his California home when he overheard a conversation between his wife and son. The son, in his early teens, was saying he had just made a ton of money on a cryptocurrency that he himself created.

Biesk knew his son played around with crypto, but to turn a small fortune before bedtime seemed far-fetched. "We didn't really believe it," Biesk says. But when the phone started to ring off the hook and his wife was flooded with angry messages on Instagram, Biesk realized the kid was telling the truth—if not the full story.

Earlier that evening, at 7:48 pm Pacific time, Biesk's son had used a website called Pump.fun to release 1 billion units of a new crypto coin, which he named Gen Z Quant. He spent roughly $350 to buy 51 million coins, about 5 percent of the total supply.

Then he started to livestream himself, also on Pump.fun. As people tuned in, they started to buy up Gen Z Quant and the price shot up. By 7:56 pm, the teen's own coins were worth almost $30,000. He sold them off. "No way. Holy fuck!" he said, flipping two middle fingers to the webcam and sticking out his tongue. The price of Gen Z Quant immediately plummeted.

To the normie ear, all this might sound impossible. But in the realm of memecoins, a type of cryptocurrency with no purpose or utility beyond financial speculation, it's relatively routine. Many people lose money, but a few have made a lot—and fast.

Biesk's son had seemingly performed what is known as a soft rug pull: Somebody creates a crypto token, promotes it online, then sells their holdings either swiftly or over time, sinking its price. These maneuvers occupy something of a legal gray area, lawyers say, but are roundly condemned in the cryptosphere.

After dumping Gen Z Quant, Biesk's son did the same with two more coins—one called "im sorry" and another called "my dog lucy"—to bring his evening haul to more than $50,000. The backlash was swift and ferocious. Traders who felt they'd been swindled unleashed a torrent of abuse into the chat log on Pump.fun. "You little fucking scammer," wrote one commenter. Soon, the names and pictures of Biesk, his son, and other family members were circulating on X. The family had been doxed. "Our phone started blowing up. Just phone call after phone call," says Biesk.

As part of a revenge campaign, crypto traders kept buying Gen Z Quant and drove the coin's price far above the point where Biesk's son cashed out. At its peak, around 3 am Pacific time the following morning, the coin had a theoretical total value of $72 million, making the teen's original holding worth more than $3 million. "In the end, a lot of people made money on his coin. But for us, caught in the middle, there was a lot of emotion," Biesk says. "The online backlash became so frighteningly scary."

Biesk concedes to a limited understanding of crypto. But he sees little distinction between what his son did and, say, playing the stock market or winning at a casino. Under California law someone must be at least 18 years old to gamble or invest in stocks, but the unregulated memecoin market, which has been compared to a "casino" in risk profile, had given Biesk's teenage son early access to a similar arena. "The way I understand it is he made money and he cashed out, which to me seems like what anybody would've done," says Biesk. "You get people who are cheering at the craps table or angry at the craps table."

Memecoins have been around since 2013, when Dogecoin was released. A few developers tried to replicate Dogecoin's success by playing off of internet memes or the zeitgeist, but the cost and

Some memecoin traders sensed an opportunity and created new coins on Pump.fun inspired by Biesk and his wife: QUANT DAD and QUANTS MOM.

complexity of developing a new crypto token generally limited what came to market. Then, in January, three anonymous cofounders launched Pump.fun, which lets people release new memecoins instantly, at no cost. The idea was to standardize the underlying code and prevent developers from building in malicious mechanisms to steal funds, in what's known as a hard rug pull.

"Buying into memecoins was a very unsafe thing to do," one of the cofounders, who goes by Sapijiju, told WIRED earlier in the year. Programmers could create systems that would obfuscate what people are buying and behave as malicious actors. "Everything was designed to suck money out of people," he says. "The idea with Pump was to build something where everyone was on the same playing field."

Since Pump.fun went live, millions of unique memecoins have entered the market. By some metrics Pump.fun is the fastest-growing crypto application ever. It takes a 1 percent cut of trades and has so far amassed more than $250 million in revenue.

The platform has not, however, managed to insulate users from soft rug pulls. Though Pump.fun gives users access to information to help assess risk—such as showing the proportion of a coin controlled by the largest holders—Sapijiju claims that soft rug pulls are difficult to prevent by technical means. "Whatever we do to stop people doing this, there's always a way to circumnavigate if you're smart enough," he says. "The important thing is creating an interface that is as simple as possible and giving the tools for users to see if a coin is legitimate or not."

The legality of rug pulls is ill-defined and depends on jurisdiction and whether explicit promises are made to prospective investors, experts say. "These actions exploit the gaps in existing regulatory frameworks, where unethical behavior—like developers hyping a project and later abandoning it—might not explicitly violate laws," says Ronghui Gu, cofounder of crypto security firm CertiK and an associate professor of computer science at Columbia University.

EXPIRED	TIRED	WIRED
Unicorns	Decacorns	Baby corns
Botox	Fillers	Going to Turkey for a new face
Toothpaste	Chewable tablets	Mechanical dentifrobots
Tape recorders	Recorder apps	AI-powered spy pins
Movie stars for president	Reality stars for president	Twitch streamers for president

The Gen Z Quant broadcast is no longer available to view in full, but in the clips reviewed by WIRED, Biesk's son never promises to hold his tokens for any specific period. The Pump.fun terms of use don't bar people from selling tokens they create. (Sapijiju declined to comment on the Gen Z Quant incident and said only that Pump.fun will be "introducing age restrictions in future.")

In July 2026, a law will go into effect in California, where Biesk's family lives, that requires residents to obtain a license to engage in "digital financial asset business activity" and will cover aspects of crypto. President-elect Donald Trump has also promised new regulations. But for now, says Andrew Gordon, a partner at the law firm Gordon Law, "we are in a legal vacuum."

"Once we know what is in bounds, we will also know what is out of bounds," he adds. "This will hopefully create a climate where rug pulls don't happen, or when they do they are seen as a criminal violation."

A few hours after the Gen Z Quant launch, an X account under the name of Biesk's son posted on X, pleading for people to stop contacting his parents. "Im sorry about Quant, I didnt realize I get so much money. Please dont write to my parents, I wiill pay you back," read the post. Biesk claims the account is not operated by his son.

Disturbed and bewildered, Biesk and his wife resolved to make all social media accounts private, stop answering the phone, and, generally, hunker down until things blew over. Biesk declined to comment on whether the family made contact with law enforcement or what would happen to the funds, saying only that his son would "put the money away." Some memecoin traders, meanwhile, sensed an opportunity and created new coins on Pump.fun inspired by Biesk and his wife: QUANT DAD and QUANTS MOM. (Both are now practically worthless.)

On December 1, after a two-week hiatus, Biesk's son returned to Pump.fun to launch five new memecoins. He named one of them "test" and another "dontbuy"—and people bought in. Biesk's son made another $5,000.

JOEL KHALILI *is a* WIRED *staff writer covering crypto and courts.*

BY JOEL KHALILI

TRUMP'S CRYPTO CABINET

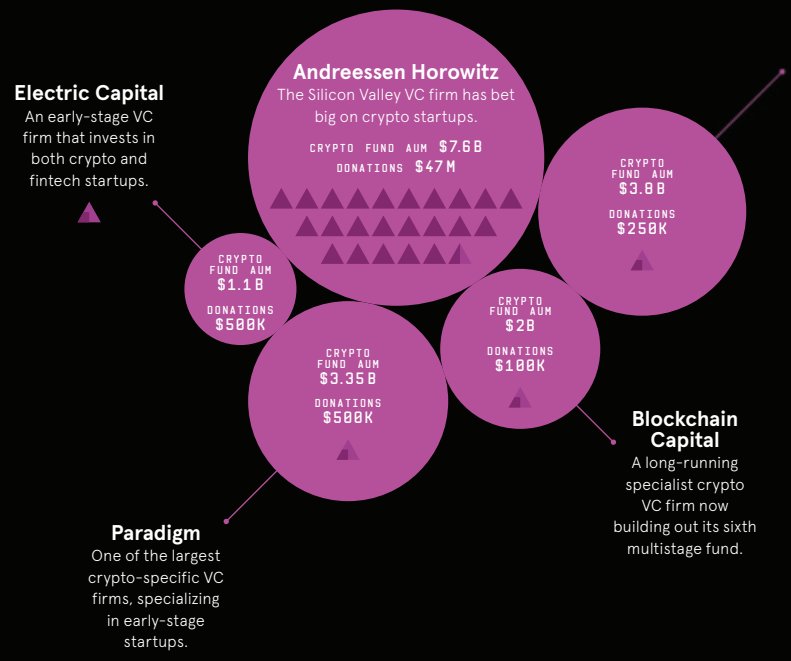
PRESIDENT TRUMP HAS surrounded himself with crypto enthusiasts. That's no coincidence. In 2024 the cryptocurrency industry spent millions backing friendly congressional candidates, plenty of whom were Republicans, and many crypto execs endorsed Trump. Here, we've mapped the most crypto-crazed members of the president's inner circle and the biggest donors to three pro-crypto super PACs: Fairshake, Defend American Jobs, and Protect Progress.

INDUSTRY BACKERS

VENTURE CAPITAL FIRMS
Bubble size reflects crypto assets under management (AUM) and valuation, respectively

COMPANIES

CRYPTO PAC DONATIONS [$2M]
Made by firms and/or their founders and CEOs


Andreessen Horowitz
The Silicon Valley VC firm has bet big on crypto startups.
CRYPTO FUND AUM $7.6B
DONATIONS $47M
Electric Capital
An early-stage VC firm that invests in both crypto and fintech startups.
CRYPTO FUND AUM $1.1B
DONATIONS $500K
Multicoin Capital
A crypto fund that invests in a combination of crypto companies and tokens on behalf of clients.
CRYPTO FUND AUM $3.8B
DONATIONS $250K
CRYPTO FUND AUM $3.35B
DONATIONS $500K
CRYPTO FUND AUM $2B
DONATIONS $100K
Blockchain Capital
A long-running specialist crypto VC firm now building out its sixth multistage fund.
Paradigm
One of the largest crypto-specific VC firms, specializing in early-stage startups.

DONATION DATA FROM FEC.GOV; COMPANY VALUATIONS FROM NASDAQ, REUTERS, AXIZ, PITCHBOOK, COINBASE, CONSENSYS.

INNER CIRCLE

JD Vance
Vice President

Vance says he holds between $250,000 and $500,000 in bitcoin. He has also previously voted to overturn measures that prevent certain banks from holding crypto assets.

Vivek Ramaswamy
Coleader, Department of Government Efficiency

In the Republican primaries, he promised to liberate the crypto industry from the "shadow government" that had tried to "quash its rise."

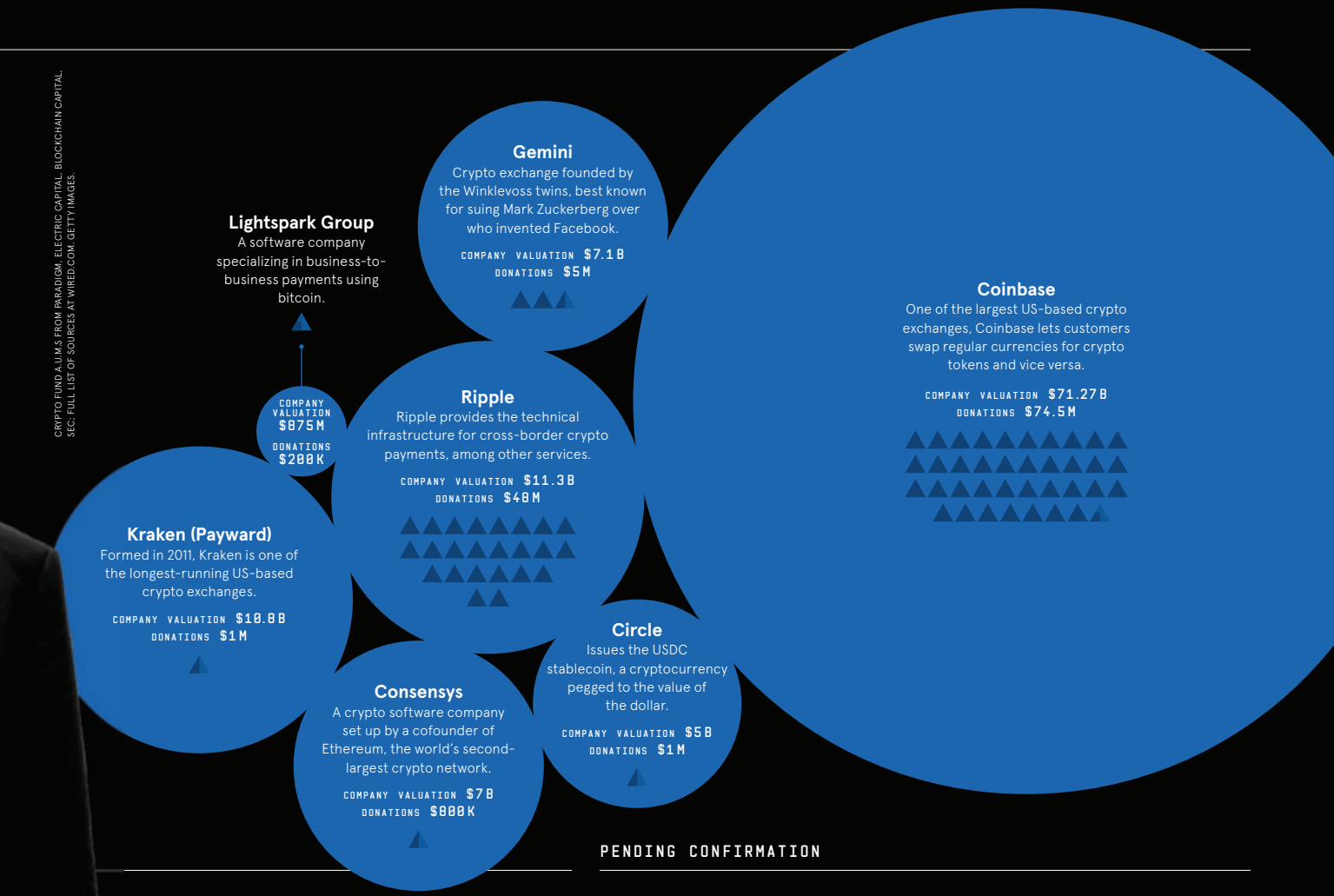
Elon Musk
Coleader, Department of Government Efficiency

A longtime Dogecoin advocate, Musk reportedly advised Donald Trump on crypto policy during the election campaign.

Crypto firms felt mistreated under the Democrats. Now, with a more sympathetic man in charge, the industry's largest donors are seeking change. They want clear rules for their businesses and a say in which agency polices those rules. And they want Trump to deliver on his campaign promises to cement the US as the foremost bitcoin mining powerhouse and to create a national "bitcoin stockpile." They hope Trump's presidency will be a golden age for crypto. In December, when the price of one bitcoin vaulted beyond $100,000 for the first time, Trump posted online, "YOU'RE WELCOME!!!"

JOEL KHALILI *is a reporter for* WIRED, *covering crypto and courts.*

CRYPTO FUND A.U.M.S FROM PARADIGM, ELECTRIC CAPITAL, BLOCKCHAIN CAPITAL. SEC; FULL LIST OF SOURCES AT WIRED.COM. GETTY IMAGES.


Gemini
Crypto exchange founded by the Winklevoss twins, best known for suing Mark Zuckerberg over who invented Facebook.
COMPANY VALUATION $7.1B
DONATIONS $5M
Lightspark Group
A software company specializing in business-to-business payments using bitcoin.
COMPANY VALUATION $875M
DONATIONS $200K
Ripple
Ripple provides the technical infrastructure for cross-border crypto payments, among other services.
COMPANY VALUATION $11.3B
DONATIONS $48M
Coinbase
One of the largest US-based crypto exchanges, Coinbase lets customers swap regular currencies for crypto tokens and vice versa.
COMPANY VALUATION $71.27B
DONATIONS $74.5M
Kraken (Payward)
Formed in 2011, Kraken is one of the longest-running US-based crypto exchanges.
COMPANY VALUATION $10.8B
DONATIONS $1M
Circle
Issues the USDC stablecoin, a cryptocurrency pegged to the value of the dollar.
COMPANY VALUATION $5B
DONATIONS $1M
Consensys
A crypto software company set up by a cofounder of Ethereum, the world's second-largest crypto network.
COMPANY VALUATION $7B
DONATIONS $800K

PENDING CONFIRMATION

Eric Trump and Donald Trump Jr. World Liberty Financial

In 2024, brothers Eric and Donald Jr. helped to launch a crypto venture, World Liberty Financial, with the aim to "make finance great again."

David Sacks AI and Crypto Czar

A serial entrepreneur whose venture capital firm has invested in multiple crypto startups. In this newly created role, he will develop clear rules for crypto businesses to follow in the US.

Robert F. Kennedy Jr. Secretary of Health and Human Services

Ran for president on a pro-crypto platform, advocating for a national bitcoin strategic reserve. Claims he has converted most of his wealth into bitcoin.

Howard Lutnick Secretary of Commerce

Before joining the Trump administration, Lutnick led Cantor Fitzgerald, a financial services firm that manages assets for Tether, operator of the world's largest stablecoin.

Paul Atkins Chair, Securities and Exchange Commission

Formerly the cochair of a crypto advocacy group, Atkins will lead a regulatory agency previously considered hostile by crypto firms.

START

BY ELANA KLEIN AND ANTHONY LYDGATE

ELON'S WORLD

From his orbital constellation of internet satellites to his preschool for future Martian colonists, there's barely a place on Earth that doesn't feel the gravitational pull of humanity's wealthiest reply guy.

TESLA

$1.34T
MARKET CAPITALIZATION

140K+
NUMBER OF EMPLOYEES

1.85M
VEHICLES PRODUCED ANNUALLY

12%
AMOUNT MUSK OWNS

SPACEX

$350B
VALUATION

13K
NUMBER OF EMPLOYEES

$15.4B
VALUE OF U.S. FEDERAL CONTRACTS

42%
AMOUNT MUSK OWNS

STARLINK

6K+
NUMBER OF SATELLITES OPERATIONAL

4M+
NUMBER OF GLOBAL SUBSCRIBERS

KEY

Estimated active X accounts, based on ad reach data

>100M >50M >20M >10M >5M >1M <1M

- AMERICA PAC
- BATTERY FACTORY
- NEURALINK
- SOLAR FACTORY
- SPACEX
- TESLA FACTORY
- THE BORING COMPANY
- XAI
- X HEADQUARTERS

OFF-WORLD ACTIVITY

Mars

Several uncrewed SpaceX Starships are slated to launch to Mars in 2026, with crewed missions as early as 2028.

Moon

The Starship Human Landing System is forecast to touch down in 2027.

Low Earth Orbit

Starlink aims to quintuple the number of satellites in its constellation, to a total of 30,000.

Chart not to scale

Musk has reportedly purchased adjoining estates in **AUSTIN**, where at least 11 of his children and two of their moms will live.

Ad Astra, Musk's private school in **BASTROP**, Texas, recently opened for enrollment to students aged 3 to 9.

Tex Luthor

Exasperated by California's rules and regulations around taxation, housing, and labor, Musk moved Tesla's headquarters to Texas in 2021. In July 2024, citing a new gender identity law in California as "the final straw," Musk announced that SpaceX and X would relocate their operations to Texas too.

X AD REACH SOURCE: DATAREPORTAL. GETTY IMAGES.

X CORP. [FORMERLY TWITTER]

$15B
VALUATION

4K
NUMBER OF EMPLOYEES

$44B
AMOUNT MUSK PAID FOR THE COMPANY IN 2022

All of them
NUMBER OF ACCOUNTS MUSK CLAIMS TO OWN

XAI

$50B
VALUATION

100
NUMBER OF EMPLOYEES

56%
SCORE ITS FLAGSHIP AI MODEL RECEIVED ON A PHD-LEVEL SCIENCE TEST

54%
AMOUNT MUSK OWNS

NEURALINK

$8B
VALUATION

490
NUMBER OF EMPLOYEES

1,500+
ESTIMATED NUMBER OF TEST ANIMALS EUTHANIZED

2
NUMBER OF HUMANS WHO HAVE RECEIVED A BRAIN IMPLANT

AMERICA PAC

$250M
AMOUNT SPENT FOR REPUBLICANS/AGAINST DEMOCRATS IN 2024

Up to 400
NUMBER OF EMPLOYEES

$238M
AMOUNT DONATED BY MUSK ALONE

0.4%
SHARE OF DONATIONS THAT CAME FROM WOMEN

THE MUSK FOUNDATION

$9.5B
CUMULATIVE ASSETS

0
NUMBER OF FULL-TIME EMPLOYEES

$2B+
ESTIMATED AMOUNT MUSK SAVED ON TAXES

3
YEARS THE CHARITY DISBURSED LESS THAN LEGALLY REQUIRED

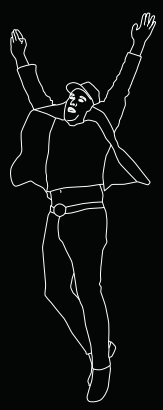
THE BORING COMPANY

$5.7B
VALUATION

>200
NUMBER OF EMPLOYEES

8
NUMBER OF "SERIOUS" UNRESOLVED WORKPLACE SAFETY VIOLATIONS

2.84
MILES OF TUNNEL COMPLETED



From Russia With Strings

Musk has reportedly been in touch with President Vladimir Putin since late 2022. (The Kremlin denies this; Musk hasn't commented.) Putin reportedly asked Musk not to launch Starlink service in Taiwan as a favor to China. (Musk hasn't.) While US sanctions ban Starlink from Russia, Ukrainian soldiers have said that Putin's military uses it.

Prince and Repeat

Prince Alwaleed bin Talal al Saud owned $1.9 billion in Twitter shares when Musk took the company private and rebranded it X. Bin Talal retains a significant stake in the social media platform. He and the holding company he runs have also invested hundreds of millions of dollars in xAI.

Buffering ...

Since Starlink service became available in Nigeria in early 2023, demand across the continent has spiked—not in rural areas, as Musk apparently expected, but in big cities, many of which are now at network capacity. (One reason for slower uptake in less developed places: Starlink has a reputation for doing stuff like doubling rates out of the blue.)

Home Screen

Musk's internet service has yet to get the green light in his native country of South Africa, in part because companies applying for a communications license must be at least 30 percent owned by "persons from historically disadvantaged groups, which includes black people, women, youth, and people with disabilities."

Strait Shooter?

SpaceX reportedly has asked Taiwan-based companies that supply Starlink components to move manufacturing to other countries because of "geopolitical considerations." At least two suppliers have begun operations abroad, in Thailand and Vietnam.

MAP SOURCE: FLOURISH/WORLD BANK OFFICIAL BOUNDARIES

GOD HELP THE DESIGNER BABIES

For years now, aspiring parents have been designing their children. Screening embryos for disease-causing genes during IVF, selecting their future baby's sex, picking egg and sperm donors to influence their child's traits. Today, a lot of those "designer babies" are full-on kids or teenagers. And some families are discovering that, as hard as you try, things don't always work out as planned: The kids feel like walking science experiments; the parents are disappointed in how their progeny turned out. Fertility businesses are selling a better chance of domestic bliss, and these families feel cheated.

Now controversial new technologies promise parents even more control over their embryos. One US startup, called Orchid, claims its genetic screening can calculate a baby's risk of autism, bipolar disorder, and hundreds of other health conditions. Another startup wants to help parents pick embryos with the highest predicted IQ. So WIRED spoke to a psychologist based on the West Coast who is already dealing with the fallout.

"I WORKED AT an adolescent treatment center. I kept coming across teens who were in distress about the way they had been created. Their parents had wanted a child who was musical or athletic or tall. So they found egg donors with the traits they wanted, created embryos with the husband's sperm, and then implanted them, often in surrogates. Usually, these couples didn't have fertility issues.

I've counseled a number of those families in the past 10 to 15 years. People who have children this way often place too much importance on genes while ignoring the environment. It's like, "This is what our family is going to look like. We're going to pick a kid, and this is how we're going to put it together. Mom's going to be in charge of the whole thing." It's like a project or building a company. People don't always realize they are creating a human being and not a piece of furniture.

In Silicon Valley, there are many distant parents—usually fathers—who hardly know their children. Sometimes the mom and child don't bond, either. There are a lot of men who are extremely successful and want things a certain way. They tend to get what they want and don't hear "no" a lot. So when their kid shows up and isn't the way that they want, what happens?

Usually, it's a disaster.

In these homes, a high value gets placed on achievement. I think the way these kids are created sends the message: "You're

ILLUSTRATION BY JOHANNA GOODMAN

GETTY IMAGES

not good enough. You need to achieve. You're not accepted."

When the kids struggle, it's especially devastating. Some kids have disabilities from being born preterm, which used to be a big risk with IVF. Or they have learning differences or autism.

Sometimes, parents chose an egg donor and then later found out that she had psychiatric problems. Then the kid gets viewed through that lens, which can be pretty devastating and traumatic: "Your donor is nuts, so you must be, too."

The child grows up feeling very different, knowing they were an experiment but not getting the proper support or acceptance they need to thrive. Because there's not a caregiver who's like, "I get you." There's none of that.

In my work, I help parents accept: This is the child you have. And I help kids accept the reality of their parents and forge a relationship that's less hurtful—or build a life without them.

Many of my families have neurodiverse members who need help making abstract concepts more concrete. Sometimes just explaining "you and your child are not the same person" does the trick. Or say a teenager doesn't feel loved. I might need to clarify to them that "love" is not a tangible feeling, like getting pinched or kicked. It means someone feels fondness toward you like you feel fondness toward Legos or drones.

In high school, a lot of teens are linking up with half-siblings through 23andMe, sometimes ones who live all over the world. It's common in these families to have different egg donors for different kids because they've tried to get, say, a sporty son and an artsy daughter. What do you do when one of your children has found their half-siblings and is bonding, while your other child doesn't have a good experience with their newfound relatives? Who do you invite to Thanksgiving?

I really feel for the moms. They're trying to balance everyone's expectations and hold it all together. But it's unfair to the dads, too. Because I'm not sure the dads can accurately predict human behavior. They probably can predict stocks, but human behavior has way too many variables. I don't know if anyone's making sure parents understand that they can't test-drive a child and then return it.

Trying to control your child is a recipe for disaster. The kid is going to rebel. If you have a preconceived notion of how they're going to be, either you're going to be severely disappointed or you're going to shove them into a mold and it's not going to work.

Maybe sometimes it does work, but those people don't come to me.

As told to **EMI NIETFELD**, *a journalist and the author of* Acceptance: A Memoir.

THE FABRIC OF REALITY

HTML counts as a real programming language. It also binds the world together.

HTML IS DECEPTIVE. It looks easy. And easy HTML *is* easy. With a few tags you can write your name on a webpage, make it bigger or smaller, add "is awesome" in bold or italics, and even—for those of us who came of age in better times—make it blink or scroll across the screen.

Because HTML looks easy and lacks features like formal conditional logic and Turing-completeness, it's often dismissed as not a programming language. "That's not *real* code; it's just markup" is a common refrain. Now, I'm no stranger to the austere beauty of the command line, from automating scripts to training machine-learning models. But underestimating HTML is a mistake.

HTML is the most significant computing language, programming or otherwise, ever developed. Every other programming language has to grapple with how HTML has redefined computing over the past 30-plus years. So many "pure" programming languages automate the production of more and more HTML.

When haters deny HTML's status as a programming language, they're showing they don't understand what a language really is. Language is not instructing an interlocutor what to do in a way that leaves no room for other interpretations; it is better and richer than that. Like human language, HTML is conversational. It is remarkably adept at adapting to context. It can take a different shape on any machine, from a desktop browser or an e-reader screen to a mobile app or a screen reader for the blind (so long as that device is built to present hypertext).

HTML is somehow simultaneously paper and the printing press for the electronic age. It's both how we write and what we read. It's the most democratic computer language and the most global. It's the medium we use to connect with each other and publish to the world. It makes perfect sense that it was devel-

oped to serve as a library—an archive, a directory, a set of connections—for all digital knowledge.

Like many readers my age, I encountered HTML in 1994, during those heady days when Netscape's browser brought the web to much more of the world. In my case, the internet was available on just a few machines at my high school—I didn't have a computer at home, let alone dial-up—but I quickly made myself an amateur expert in navigating the strange new space that Tim Berners-Lee and his colleagues had brought into being.

An older friend showed me how he built his own homepage, complete with animated "under construction" GIFs, an interactive Magic 8-Ball, and a handful of bandwidth-devouring photos. Since I didn't have an email address, he set up a text entry field on his site where I could send him messages, with stern instructions that the textbox was "only for TIM." He'd post his own responses directly on the website, so I (and theoretically anyone) could read them when I next got access to a machine. This is what passed for information security for two low-risk targets in those days.

The idea that you could build something fun for your friends, but potentially anyone in the world could discover it, was intoxicating. So was the language itself. Most raw HTML then was easy for humans, even newcomers, to understand. You didn't need a primer in formal logic to grasp that most tags needed to be opened and closed (like parentheses in a math statement or ordinary sentence) to function as intended. And you didn't need to be a mischief-minded teenager to see the possibilities in what happened when HTML "broke."

To learn any programming language is to learn how to debug it. But a malformed command in Python usually returns an error message that keeps the code from running, not something that fails brilliantly yet monstrously, outpacing its creators' intentions. With HTML, we are all Doctor Frankenstein.

One of my favorite websites of all time is the Embroidery Troubleshooting Guide. These days it's available only via the Internet Archive, unless (like me) you have a local copy. At the top, it looks like a typical, if somewhat old-fashioned, small-business website. But when you glance down, you immediately notice something strange about it. The text, all center-aligned in alternating red and blue Arial, gradually gets bigger and bigger, with phrases forced to wrap lines or reach the edge mid-word, filling up the screen like Alice trying to squeeze through smaller and smaller doors in Wonderland.

When you view the source code (have any other programs made it so easy to view source like a website?), you'll quickly discover what's gone wrong. Each line of centered text begins with <h2> or <h3> header tags that never close. Each header tag—which only establishes a relative size, not an absolute one, part of the semantic richness of the web's flexible grammar—builds on the last, creating progressively larger nesting dolls. The tag designed for defining textual hierarchy runs amok, creating chaos. The fact that the words themselves are about how and why threads can break makes it poetry.

On its own, the Embroidery Troubleshooting Guide would be a clever enough piece of found conceptual art. But by viewing the source, downloading the file, and replacing the instructions for troubleshooting common sewing problems with any text you like, you can make that artwork your own. I like to put in my favorite poetry, decontextualizing it and forcing myself to read it with new eyes.

"Broken" sites like these upend the great achievement of semantic HTML. As it developed, semantic HTML increasingly separated structure from presentation: Instead of <i> tags, which strictly specify that a text be presented in italics, we use tags to identify emphasis (or <cite> tags for titles of books or movies, etc.). These elements can then be presented as italics on a computer screen but be read with a different intonation by a screen reader. The Embroidery Troubleshooting Guide hijacks a semantic tag and makes it present something unexpected. The same building blocks that allow a single website to be displayed responsively on a tiny phone or enormous television screen can make a website fundamentally undisplayable. This is delightful.

I appreciate the utility of content management systems and complex sites that generate HTML dynamically, but there's a joy in building sites out of simple HTML files you can edit by hand. I still edit my own website this way, tidying it up so I can see every tag, section, and paragraph break. I even love editing my own ebooks, turning PDFs into nicely formatted HTML-based EPUB files that never get published to anyone: my own private library of self-contained websites. During the height of the pandemic, editing these files and their style sheets by hand was a balm.

Ultimately, even as HTML has become the province of professionals, it cannot be gatekept. This is what makes so many programmers so anxious about the web, and sometimes pathetically desperate to maintain the all-too-real walls they've erected between software engineers and web developers. But people who write HTML know that hierarchies were made to be blown up. All it takes is a tag that doesn't close where you'd expect it to.

What other programmers might say dismissively is something HTML lovers embrace: *Anyone can do it.* Whether we're using complex frameworks or very simple tools, HTML's promise is that we can build, make, code, and *do* anything we want.

TIM CARMODY *works at an AI education company and is a former senior writer at* WIRED.

HyperDrive NET 6-in-2 USB-C Hub ▲
2025 marks the 10th anniversary since Apple removed all the useful ports from its laptops. Whether you celebrate or commiserate, chances are you still find yourself needing an extra input now and then. For that, we have this hugely practical, impressively designed six-in-one USB-C hub that includes a gigabit Ethernet, HDMI, and twin USB-C, plus a pair of USB-A 3.0 ports for hooking up anything a little more old-school. The hub's aluminum enclosure matches the color of your MacBook's shell, and its shape makes it feel like a natural extension of the laptop instead of some alien appendage. Check before you buy, as not all current MacBooks are compatible. $100

Kaweco Classic Sport Fountain Pen ▲
A testament to timeless design that, despite the price tag, can happily mix with Montblanc in the boardroom. Nobody will think less of you when you whip out this classic fountain pen. Made in Germany since 1911, the Sport—identifiable by its gold accents and octagonal barrel—can be customized with your choice of five nib thicknesses. With a length of just 4.1 inches closed, but 5.1 inches when the cap is posted on the end, it hides easily in a pocket but feels great to grip as you sign that big-money contract. $25

Hoto Precision Screwdriver Pen (Manual) ▲
This alloy aluminum screwdriver is outfitted with 24 steel precision bits including Phillips, Torx, Slotted, Hex, Pozidriv, Square, and Security, meaning you can fix your sunglasses and smartphone with one handy gadget. Each bit head has a different shape at each end for maximum practicality. Magnetic fasteners inside the pen barrel keep things tidy. We've yet to find a more elegant multi-tool at any price. $25

Papier Tigre Cobalt Pink Stapler ▼
While we patiently wait for the arrival of the paper-free office, we can use this happy little powder-coated steel stapler to bind up to 20 sheets together in one quick pinch. The beautiful and affordable tool—whose shape is evocative of a smiling cetacean—can hold 150 size-10 staples when fully loaded. It's also available in an equally jolly blue and green color combination. Papier Tigre has shops in Paris and Tokyo and ships globally. $15

Herman Miller Oripura Laptop Stand ▲
Portable, foldable and, given Herman Miller's exclusive reputation, unfathomably affordable, this stand props your laptop at an angle that reduces strain on your eyes and your back. It folds flat for easy transportation and requires no assembly. With cable slots to keep your workspace tidy, it can manage laptops with screens from 11 to 16 inches. It's also 100 percent recyclable, with no-slip pads and a choice of pale yellow, mint green, or white matte finish. $49

CHEAP THRILLS

The next new thing doesn't have to cost as much as next month's paycheck.

Logitech Pop Mouse ▲
This modest mouse is available in eight colors, including a predictably bland black and white, but it's this mint, lilac, and sunshine-yellow combo that has us lusting after it. Gamers looking for IPS precision and DPI sensitivity need not apply, but it offers extras you wouldn't expect on a bargain-priced peripheral, like support for multiple devices, generous use of postconsumer recycled materials, and a separate top button that can be assigned a task—or a specific emoji if you're inclined—via the Logi Options+ App. A color-matched wireless keyboard is also available. $29

COURTESY OF HYPERDRIVE, KAWECO, HOTO, PAPIER TIGRE, HERMAN MILLER, LOGITECH

Arturia MiniLab 3 ▼

Harlan Howard needed three chords and the truth. Beck insisted on two turntables and a microphone. These days, the potential for musical brilliance requires little more scratch than a nice meal out for two (and, well, some talent). Arturia's MiniLab 3 is a velocity-sensitive, 25-key, plug-and-play MIDI controller that has 16 RGB-backlit pads, eight rotary encoders, four sliders, and capacitive touch sensors for pitch bend and modulation control. Loaded with software and millions of samples via Analog Lab Intro, Loopcloud, Ableton Live Lite, and more, it's a one-stop digital audio workstation offering the potential for pro-quality production whatever your experience level. **$109**

COURTESY OF ARTURIA, KOSS, SONOS, MOONDROP, JBL, NOTHING

Koss Porta Pro ▲
When these perennially cool headphones first launched, Prince, Madonna, Kenny Loggins, and Van Halen were jumping up the charts. And despite all the advances in wireless technology, these old-school wired on-ears still sound great, with dynamic drivers delivering an impressively wide frequency range and solid bass. The slightly open design isn't great for noisy commutes, but the folding design, adjustable headband, and "Hip to Be Square" '80s aesthetic can't be beat at this price. $50

Soundskins for Sonos ►
Conceived as an easy and affordable way to keep your Sonos speakers from gunking up your decor, Soundskins are 3D-knitted textile covers made to snugly fit the 12 main Sonos speaker shapes. The brainchild of Arno Ruijzenaars, founder of Leff watches and Amsterdam's Vanmokum design studio, these sleeves are acoustically inert and have no impact on the speaker's output but do an excellent job of adding texture to a relatively sterile piece of industrial design. Ideal for when you need a change but don't want a whole new system. $37 and up

Moondrop Discdream 2 ◄
We love playing CDs, but as audio tech has advanced astronomically since the bygone days of the Discman, the best way to spin that plastic today is to use a thoroughly modern player like Moondrop's newest Discdream. It has everything required of a quality CD player, like shock absorption and an accurate motor drive, plus some 21st-century upgrades like the latest hi-res audio chips, a clean and powerful headphone amplifier, and a USB-C rechargeable battery for nine hours of listening. $150

Nothing Ear (a) ▲
It took a lot of listening for Parker Hall, senior editor of product reviews at WIRED, to crown these AirPod clones as the best earbuds for most people, but that speaks to just how good they are. Nothing's stylish yellow buds come in a funky clear charging case and offer excellent sound and noise cancellation for Android phones as well as iOS handsets. $99

JBL Go 4 ◄
Don't let its diminutive size (3 inches wide) and meager 4.2 watts of power fool you. This superbly made, impressive-sounding mini Bluetooth speaker brings the bump. It has seven hours of battery life that can be extended to nine if you use the clever "boost" function, which drops the volume but keeps playing. It's water- and dustproof, so it's made for tossing into your beach bag. Performance is commendable too, with a genuinely enjoyable sound full of dynamism and enough punch that you won't need to (and please do not) crank it to full volume in public. $40

Opinel Paring Knives No. 112 ▲
The stainless steel knives from Opinel deserve a spot on the podium in the EDC hall of fame. While virtually everything from the famous French brand is worthy of celebration, its folding knives for the field often get more attention than its nonfolding blades for the kitchen. Change that with this set of four colorful paring knives. They have wonderfully sharp 4-inch stainless steel blades and solid hornbeam wood handles, and they provide superb control for peeling and slicing with precision. **$42 for four**

Bodum Programmable 12-Cup Coffee Maker ▲
There are plenty of decent and affordable coffee machines, but when it comes to countertop cool, you'll find nothing better than this adorable MoMA Design Store exclusive made by the Swiss kitchen stalwart Bodum. This '80s-inspired 12-cup machine uses a showerhead positioned over the brew basket to distribute hot water evenly to the grounds, creating some well-balanced magic juice. It automatically shuts off 25 minutes after the pot is done. **$89**

Novesta Star Master 99 Beige ▼
Save your carbon plates for race day. These timeless plimsolls are made by hand from natural rubber, cotton, and canvas using traditional techniques barely updated since the Slovakian brand's inception in 1939. Aside from being supple and supportive, the thick vulcanized soles are instantly recognizable, and they give the shoes a no-nonsense style that looks sharp with any cut of jeans, slacks, skirts, or dresses. Get them as either high-tops or the classic lows—or one of each. **$61**

Sea to Summit Frontier Collapsible Kettle ▲
This space-saving wonder is for ultralite outdoor types who refuse to compromise on the quality of their coffee. Weighing just 7.1 ounces, it features a collapsible design that squishes down to an impressively flat disc. When fully extended, it manages a 1.1-liter capacity. The base is made of hard-anodized aluminum, so heat from your camp stove conducts efficiently. The nylon handles are reinforced with glass to insure against jiggly pours. Also, the rim is nice and wide, so you can use it to cook dinner too. **$70**

Bask Florence Hygge Lamp ▲
Value is an impossibly subjective concept, but it would be a mean-spirited individual who couldn't find value in this delightful LED lantern. First, Bask is an independent lighting company from Minneapolis and not a faceless brand lurking in Amazon's darkest corners. Second, this lamp, inspired by Frank Lloyd Wright's designs, is impressively well made; the glass and metal enclosure houses a 2,600-mAh battery and an LED offering a golden, diffused light. **$35**

Ikea Uppfylld Funnel ◀
Ingvar Kamprad founded Ikea in 1943 when he was just 17. The Swedish megacorp has evolved a bit since then, and along the way it has managed to infiltrate our homes—no matter our style or budget—in a way that no other retailer can claim. The principles of price, quality, function, and form remain, and nowhere is this better illustrated than with the Uppfylld kitchen collection. The funnel is our favorite. Even for its sub-$1 price, all it needs to do is simply work, but the thoughtful pop of color, ridged surface, and gently fluted body elevate it admirably. **99 cents**

COURTESY OF OPINEL, SEA TO SUMMIT, BASK, NOVESTA, BODUM

Perpetual lunacy

The extraordinary new **C1 Moonphase** from Christopher Ward. A watch that tracks the moon for 128 years – without missing a beat. With an aventurine glass dial infused with copper oxide to represent the night sky. And a 3D 'moon' sculpted from Globolight© – a luminous ceramic – that precisely follows the real moon's journey across the sky. A watch this advanced can cost up to $60,000. But the C1 Moonphase starts from less than $2,500. As someone once said, you don't have to be mad to work here...

Do your research.

Christopher Ward

Book a showroom appointment

christopherward.com

View the watch

ILLUSTRATION BY KITASAVI

A Place in the Sun

The Spectacular Burnout of a Solar Bro

by Brendan I. Koerner

Photographs by Naomi Harris

Aaron Colvin was doing tricep pushdowns at the gym when he spotted a cartoonishly huge bodybuilder across the mirrored room. The guy was coaching a woman through a set of cable rows, and the 18-year-old Colvin paused to study their technique. When the bodybuilder caught him staring and lumbered over, Colvin got concerned. He figured he was about to be accused of ogling the man's girlfriend—one of gym culture's cardinal sins.

But the bodybuilder only wanted to strike up a friendly conversation, during which he asked Colvin what he did for a living. At that point in August 2023, Colvin was about to begin his freshman year at Niagara University, a small Catholic school near his hometown of Niagara Falls, New York. But he was lukewarm on college; he wanted to devote himself to becoming an entrepreneur like Grant Cardone or Alex Hormozi, two of his personal heroes. At 13, Colvin had vowed to follow in their footsteps so he could ease the financial pressure on his mother, a special-education teacher who had raised him with little help. As an intensely driven teen, he'd launched a series of one-man ventures that never quite panned out: T-shirt seller, carpet cleaner, affiliate marketer, drop-shipper, Amazon arbitrageur. He was currently working daily shifts at both Chipotle and Pet Supplies Plus to save up $3,000 for a course on how to run a personal-training business.

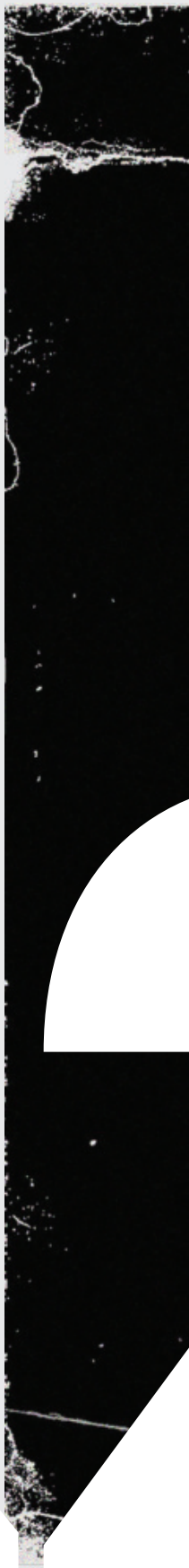
Colvin's brawny new acquaintance wanted to steer him toward a different opportunity: "What do you know about solar?" he asked. When he wasn't competing on the amateur bodybuilding circuit, the man said, he worked for Freedom Pros, the door-to-door sales arm of Freedom Forever, one of the nation's leading installers of solar-energy systems. The bodybuilder had just returned from a trip to Florida where he'd joined a "blitz"—solar-industry slang for a sales event in which packs of young men in crisp polos and khaki shorts descend on a city, crash in a cheap hotel or Airbnb, and spend weeks knocking on as many doors as possible. He boasted of having made "crazy money"—as much as $20,000 in a single month—by convincing just a handful of homeowners to cover their roofs with solar panels.

Colvin, a sinewy former high-school wrestler whose rounded silver eyeglasses give him a scholarly mien, was plenty intrigued. "I'm like, holy shit," he recalls. "Like, yeah, awesome, I'll look into it."

A few weeks later, Colvin had a FaceTime call with the bodybuilder's manager at Freedom Pros, an energetic 21-year-old named Will. Though his college semester had just begun, Colvin told Will he was thinking of dropping out: As someone who'd been shaped by hardship—he and his mother once lived above a Niagara Falls pharmacy that was regularly burglarized by drug addicts—he was having a tough time relating to his classmates, most of whom hailed from cushier backgrounds than his own. "I was having a midlife crisis in my dorm room," Colvin says. Will pressed him to join his door-to-door sales crew, which he'd dubbed Seal Team Six. The work was a breeze, he said—just a simple matter of making homeowners aware they could save thousands by installing solar panels and selling surplus electricity back to the grid. As long as Colvin conveyed that message while standing on strangers' doorsteps, his sales commissions would dwarf his wages at Chipotle. "Behind every door is $5,000" was the unofficial motto of Seal Team Six. (Freedom Forever claims its 2023 gross revenue topped $1 billion.)

After a bit of mulling, Colvin declined the offer. He worried he'd regret quitting school without giving it a fair shake. But Will was a relentless recruiter. On a near-daily basis that fall and winter, he peppered Colvin with Instagram Reels produced by "solar bros" showing off their six-figure commission checks, their penthouse apartments, their exotic cars. These influencers—tanned, sculpted, brimming with confidence—stressed that anyone could reap such rewards if they had the courage to swap their mundane lives for a place in the green economy's forward trenches.

As he slogged through accounting classes, Colvin became increasingly receptive to Will's spiel. Midway through his second semester, he agreed to fly to Orlando for spring break to try out a blitz. If all went well, he'd even try to capture the flowering of his new career on video, in hopes of maybe becoming a solar bro himself.



Young adults selling solar panels door-to-door "are making stupid money," Aaron Colvin said, "and here I am basically wasting my life away."

No one buys solar systems to address an urgent need. They are what marketers refer to as "proactive products"—items you can live without but which may provide advantages down the line. In the industry's early days, the systems were so pricey that they were marketed solely to wealthy homeowners who wanted to reduce their carbon footprint. But around 2010, the price of solar panels began to plummet as more manufacturing facilities came on line, particularly in China. At the same time, solar companies concocted leasing arrangements that helped limit up-front costs. Going solar could now be pitched to the masses as a decision with long-term financial benefits. But installation still ran upwards of $20,000, an investment that consumers were hesitant to make when their electrical situations seemed just fine.

To jolt them out of their complacency, the solar industry came to rely on one of the oldest—and most annoying—sales techniques: indiscriminately banging on doors. Companies such as Sunrun, which reported $2.25 billion in revenue in 2023, operate on the principle that there's no good replacement for the intense persuasion that can be exerted in face-to-face conversations. And because commissions are much higher than those for typical door-to-door products, like magazine subscriptions or burglar alarms, there's been no shortage of young recruits willing to heed the industry's call for manpower.

As Colvin learned soon after landing in central Florida, the profession doesn't coddle its newcomers. He was taken from the airport to the crew's house in Kissimmee, a swampy city in the shadow of Disney World, to throw down his bags. Will then informed him there was no time for rest—the four-member crew was going to go "rip," or knock on doors. They piled into Will's Toyota Camry and drove 30 miles to the suburb of St. Cloud, where Colvin was briefed on the basics. He would be working as a "setter," the person who makes the initial contact with homeowners and persuades them to book an appointment with the "closer," the person who gets the contract signed. Colvin was instructed to use a script in which he told potential customers that he'd been dispatched to check on the neighborhood's utility poles. (Exactly who had dispatched him remained vague.) He was then supposed to say the poles were about to be hardened against hurricanes, an expensive upgrade that would allegedly raise everyone's elec-

tric bills by close to 40 percent. When a look of panic crossed a homeowner's face, that was Colvin's cue to tout solar panels as a money-saving solution.

Colvin rarely got that far. As Will periodically rode by on a Segway to monitor his work—Segways were for closers on Seal Team Six—Colvin flailed in his efforts to charm the residents of St. Cloud. Some people were outright hostile to his presence, perhaps because solar bros are widely stereotyped as dishonest. Their employers, including some of the biggest companies in the solar industry, have been sued hundreds of times for allegedly engaging in fraud. In May 2024, for example, the state of Nebraska sued Everlight Solar for using "misleading savings models that omit relevant information and accurate data that could result in projections that show consumers spending more on panels than they would save." Homeowners familiar with solar's shady reputation often feel entitled to heap abuse on any salespeople who set foot on their property.

Colvin encountered a lot of polite Floridians, too, but they were always quick to offer an excuse: They were renters, they were broke, their spouse wasn't home, they'd already said "no" to 15 other salespeople who'd come knocking in recent months.

Managers in the solar industry are adept at making novice salespeople like Colvin push through the job's darkness. They do so by convincing their crews that the work has a quasi-spiritual component—that it's a path to not just wealth but also radical self-improvement. For Seal Team Six, that meant adhering to an almost monastic routine. Colvin woke up early each day to study books like *Door-to-Door Millionaire* and videos on how to handle customers' objections. He and his three teammates would then hit the gym to lift weights together before ripping until 9 pm. They'd stop only to wolf down a burrito or a few tuna packets for sustenance. At the end of the day, after "bageling"—that is, logging zero appointments—Colvin would pass out to the strains of *Fortnite* emanating from the living room.

During the second week of his trial period, while ripping at the end of yet another featureless cul-de-sac, Colvin hit the wall. In such moments, he tried to lift his spirits by perusing a Notes file he keeps of all the nice things people have said to him over the years. But this time he was too low for that trick to work—he was sapped by the humidity and sick of being told he deserved to be arrested. But then he noticed a man sitting on the curb—presumably the father of some kids who were playing in the street. Sensing that this dad was open to being chatted up, Colvin sat next to him and tried to use raw honesty to his advantage. "My boss has got me out here working, and I'm getting my ass kicked today," he told the man. "I'm just trying to save people money on their electric bill." That line piqued the man's interest, and he soon agreed to meet with Colvin's "design specialist"—his closer.

Colvin, however, made the rookie mistake of setting the meeting for eight days in the future. That gave the customer too much time to get cold feet; the appointment never happened. Still, Colvin took heart in the minor victory. Confident that greater triumphs were just around the corner, he promised Will he'd return in May and that he'd make so much money that dropping out of college would be a no-brainer. Will said he would consider it a personal failure if Colvin didn't end up with $40,000 in his pocket by September.

Back in New York, Colvin sleepwalked through his final weeks of school. He couldn't stop thinking about his brief fling with solar success. So buoyed was he by the high, in fact, that he became an evangelist for solar himself. Like the bodybuilder he'd met the previous August, he was eager to recruit others to the cause. One of them was Connor Dougherty, a Niagara student who was a friend of a friend.

A hulking and preppy young man who exudes a gentle goofiness, Dougherty shared Colvin's reverence for bold entrepreneurs; his father owns a thriving meal-prep business in Rochester, New York. He told Colvin that he wanted to hone his sales chops and that he was looking into working at an auto dealership for the summer. Colvin convinced him that door-to-door solar would provide a more intensive—if, admittedly, less pleasant—education. "It seemed like it's just the coldest sales experience you can get," Dougherty says. "I figured that would be the best."

Colvin also reached out to Dakota Williams, a wispy and shaggy-haired 17-year-old who speaks with a skater's cadence. The two had met a year earlier at a party, where they'd bonded over mutual interests—Colvin had been impressed to learn that Williams was a fan of *The 48 Laws of Power*, a popular self-help book. Williams also talked about the difficulties he had faced growing up, which struck Colvin as far more harrowing than his own. A member of the Tuscarora Nation, an Indian tribe whose New York reservation lies east of Buffalo, he had been intermittently homeless while earning his GED as an adolescent. When Colvin reconnected with him in the

spring of 2024, Williams was living in a shelter and flipping burgers at McDonald's.

Colvin introduced Williams to Will, who offered up a free bed in the Kissimmee house—at least to start. (The standard rent for crew members was $500 per month.) But Williams didn't have any money for airfare, so he and Colvin decided to make the long drive together. The night before they set out, Colvin started gathering footage for his fledgling YouTube channel, which he envisioned as his ticket to becoming an inspirational media figure. He had set it up while still in high school to document his "journey from broke to billionaire." Now, he filmed himself jubilantly clocking out of Chipotle for the last time. He then recorded a more contemplative video in his dorm room as he packed up the last of his things. "I know I'm not going to fail, because I don't have an option," he said into his phone's camera as he paced around the room while wearing a white T-shirt festooned with palm trees. "Because literally if I fail, I'm fucked, I'm going to be homeless. And that's not going to happen. I will knock until I die."

He was more upbeat the following morning as he gathered a few last items at his mother's house. "I'm ready to be the best rep," he said as he weaved through the kitchen wearing the broadest possible smile. "Go down there, give it my all, and start making some fuck-you money!"

After 20 straight hours on the road, Colvin and Williams were given just three hours to rest before being sent out to rip with Seal Team Six. The crew was in the process of doubling in size from March—it would soon have up to 10 members on any given day, some of whom slept on air mattresses in the living room because all the bunks were taken. Will had also moved the crew to a different solar company, Sunder Energy, that he said offered more generous commissions than Freedom Pros.

The sales script remained the same, however—as did the poor results. When Colvin looked at the large group chat that Sunder Energy's setters used to log their activity, his frustration would bubble to the surface. Peers would announce that they'd snagged multiple appointments in a single day, an achievement that too often eluded him. Sometimes he was forced to do punishment push-ups when he bageled hard. (The reward for setting more appointments than expected was the Ric Flair—two claps and a loud "WOOOO!" from the rest of the crew.)

Desperate to juice his lackluster numbers, Colvin deepened his commitment to self-improvement. He spent the mornings memorizing techniques such as "tie-downs," questions designed to make a potential customer see no way forward but to adopt solar. ("Are you guys planning to stop using electricity and go Amish anytime soon?") He and Williams also practiced trying to sell each other a ballpoint pen, a classic drill from how-to books about sales.

"Do I want to be the best? Yeah," Colvin said in one of his YouTube videos, recorded for his 153 subscribers as he sat cross-legged on a patio sofa beneath a radiant late-afternoon sun. "Am I doing everything in my power to become the best? Yeah. I'm doing the trainings, I'm reading the books, I'm putting the hours in on the doors. In between doors I'm taking notes on what I did right and what I did wrong. So, yeah, I'm getting better every day. And I know as long as I continue to do this every day, I'm going to win. And for me, it's less about the work and more about the work that's being done to myself."

A big point of emphasis in door-to-door culture is that salespeople must always maintain a "positive mental attitude" no matter how many disappointments they encounter. Yet when Seal Team Six relocated to an Airbnb in Tampa in late May for a 10-day blitz, Colvin admitted he was struggling to put up an optimistic front. "I'd be lying to you if I said I wasn't getting discouraged," he said in a video one night as he nervously twisted the edges of his hair. "I've been doing solar at least 20 days, I have not got a single sale yet." But then, having seemingly remembered that vulnerability is taboo in the world of sales, he stared into the camera and expressed his resolve: "I don't give a fuck if I have zero dollars in my bank account. I'm not quitting until this shit works."

On his sixth day in Tampa, shit finally worked: An appointment Colvin had set up resulted in a closed deal. Since he'd been promised a 50-50 commission split with the closer, Colvin calculated

Scan For Free Magazines

he was due to make at least $3,500. “It’s like I cannot fathom—I’ve never seen so much money at once in my life,” he said in that night’s celebratory video. “I can’t believe it’s real.” Looking at the records he’d been keeping, he estimated that he’d been through about 850 face-to-face rejections before this one success.

Colvin kept a close eye on his bank account in the days that followed, checking to see whether the first of his two payments had arrived. Then, more than a week later, it finally did: The amount was $180.

Will offered a circuitous story when Colvin confronted him about the payment issue. He said the closer had been forced to do more work than usual because Colvin had failed to provide the homeowners with adequate information; as a result, Colvin was entitled to only an 18 percent cut of the commission. Will added that the customer’s roof also needed unforeseen work to accommodate the panels, which further ate into the project’s profit margin. Colvin would have to be grateful for what he received. It was a learning process, after all.

A Sunder Energy spokesperson told me that Colvin was either misinformed or misunderstood Will: “Shortly after the sale, the homeowner for this project decided not to move forward and canceled their agreement. This results in no further commissions for a project and a reversal of any initial commissions already paid.”

As Colvin grappled with his bewilderment over the payment discrepancy, Dougherty also had one of his appointments lead to a closed deal. He believed he’d earn a commission of roughly $6,000. He continued to knock on doors as he awaited his first payment, and one day he thought it would be fun to try out a closer’s Segway. The vehicle took off with more thrust than Dougherty expected and he was thrown to the ground, tearing his medial cruciate ligament in the process. At the emergency room, Colvin tried to lift Dougherty’s spirits by making him recite sales slogans as he bench-pressed the pole that held his IV fluid bag.

White space on a calendar lets the devil in, Colvin says.

The hobbled Dougherty had to return to New York for an MRI and physical rehab. Weeks into his recovery, after being told several times there was a snafu with his banking information, he finally received his cut of the solar deal: $600. The closer couldn’t convincingly explain the reasons for the shortfall, though he claimed that he, too, had been paid less than expected. (The Sunder Energy spokesperson says that both Colvin and Dougherty could have

escalated their concerns "to other sales leaders, department heads, and even company executives.")

Despite the slightness of his paycheck, Colvin moved with the crew to the next 10-day blitz in Ocala, where they rented a pair of houses on a horse farm. He also kept posting a new video every day. "I know I'm at the point in my life where if I want to earn more money, I have to increase my skill set, and in order to increase your skill set, you're going to have to eat shit for a short period of time," he said in one. "Absolutely a hundred percent, when I hit month six of this, I'm going to be a completely different person spiritually, financially, physically." In private, though, his bitterness over the commission dispute was starting to blot out his faith in Seal Team Six.

Just before the July rent was due, Colvin told Will he was quitting. He wanted to stay a few more days so he could celebrate the Fourth of July with Dakota Williams and his other solar comrades; he even volunteered to rip through the holiday to pull his weight. He was stunned when Will told him to pack up his things and leave. More than a thousand miles from Niagara Falls, Colvin was now homeless and jobless, with less than $200 to show for his two months of labor. (When I contacted Will, he told me one thing of note about Colvin before ending the conversation: "He's a good kid, just negative.")

Now tumbling toward despair, Colvin asked for help from a Freedom Pros closer named Doug Hotz, whom he'd met during his original March stint. Hotz, a 24-year-old born and raised in Orlando, had been aimless as a kid. Solar, he tells me, gave him the discipline he needed to get his act together. He was now a quasi-nomad, shepherding a sales crew he called Bouknight from one blitz to another around the country. "I don't have a girlfriend. I don't have any kids," he says. "I miss my parents' birthdays. I miss my siblings' birthdays. It's just, right now, this opportunity is not going to be here forever, right? So I'm just trying to take full advantage of it."

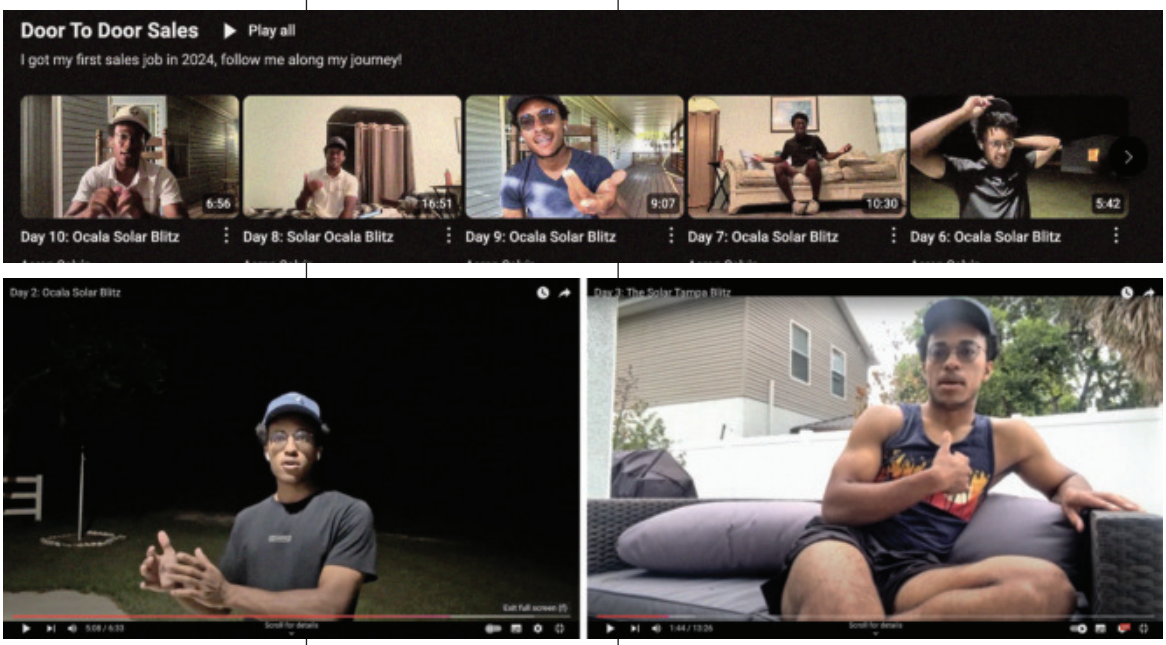
After hearing Colvin's tale, Hotz let him join his team and crash at his parents' house, in an un-air-conditioned room filled with Florida Gators memorabilia. Colvin was free to rip with Bouknight in the Orlando area, but soon he'd have a choice to make: Hotz and his crew were about to drive to Illinois in search of virgin sales turf. That meant Colvin would have to leave behind his friend Williams, who was still very much committed to "getting 1 percent better each day" with Seal Team Six.

Colvin decided to head to Illinois to keep chasing the solar dream. On July 8, he recorded his Florida postmortem in a wispy white tank top while preparing to drive north toward the state's panhandle. "It seems like every time things couldn't possibly get worse, they got worse," he said. "But this is the happiest I've ever been in my entire life, which is crazy because this is also the most unstable I've been in my entire life. Yet I believe the true reason I feel so much fulfillment is that I'm doing what I know I'm destined to do."

Bouknight was a smaller crew than Seal Team Six, with just three setters and Hotz as the lone closer. Colvin developed a fast friendship with a 25-year-old colleague named Nikita Dornan, a native of Russia who'd been adopted by a Nebraskan family when he was 6. Like so many other solar salesmen, he'd rejected college as the best path forward: He'd started selling burglar alarms door-to-door out of high school, later moving on to Andersen windows. After so many years of knocking on 150 doors a day, he'd developed a sixth sense for when a "no" contains a glimmer of a "yes." "Maybe a homeowner's attention got too focused on a dog or a kid, so they can't see in that moment how beneficial this would be for them," he says. "Going back to those people definitely helps."

The crew set up shop at a Holiday Inn Express in Litchfield, Illinois, a sleepy town in the farm country south of Springfield. Then they discovered that they were the fifth solar crew to sweep through the area in recent months. Colvin also sensed that the locals didn't take kindly to the fact that he's Black, and that one of his colleagues, Yusuf, is from Egypt. (Nikita concealed his Russian origins by introducing himself to homeowners as Ken.) Colvin was accustomed to angry Floridian homeowners telling him they would call the police, but Illinois was the first place where someone actually followed through: The cops in Litchfield harassed the crew for operating without a solicitation license (an oft-ignored requirement in many municipalities). Bouknight brushed off the setback and fanned out to Edwardsville and Decatur to knock on more doors.

Colvin had good luck with setting appointments in Illinois, but none of his deals closed. The majority of his potential customers failed their credit


Door To Door Sales
Play all
I got my first sales job in 2024, follow me along my journey!
6:56
16:51
9:07
10:30
5:42
Day 10: Ocala Solar Blitz
Day 8: Solar Ocala Blitz
Day 9: Ocala Solar Blitz
Day 7: Ocala Solar Blitz
Day 6: Ocala Solar Blitz
Day 2: Ocala Solar Blitz
Day 3: The Solar Tampa Blitz

Solar influencers tend to minimize the pain of rejection in their online posts and videos. Not Colvin—he freely talked about being yelled at by dozens of strangers a day.

checks; the rest had structural issues with their roofs. He pressed on, but the tab for the Holiday Inn room he shared with Nikita was becoming daunting. The money he'd saved from his 50-hour weeks at Chipotle was almost gone. So as the start of Niagara University's fall semester drew near, he admitted defeat and went back to school.

Hotz was mystified. To him, college is a pointless endeavor that robs a person of prime earning years; the only reason someone would choose the classroom over the doors was fear. Colvin explained that he was drowning financially, that the $180 he'd earned in Florida wouldn't even put a dent in his hotel bill. He would get back to ripping as soon as he could, but he needed to hedge his bets by working toward his accounting degree.

Once back in New York, though, Colvin couldn't shake the strange grip of door-to-door. "When all you do is grind, and you come back to how the average person lives, something in you dies," he says. "I felt so empty. I'm like, 'I don't know what to do with my life.' Even though I made no money, there was so much purpose driving me every day. I had something to strive for."

Colvin had every intention

of sticking with solar as his sophomore year got underway. To stay connected to the industry until he could get back to ripping, he signed up with another solar company and started making cold calls from his dorm room. He rented

an auto-dialer for $50 a day and paid a middleman for a list of supposedly promising leads. He never earned a dime and quit by late September.

Now fearing that he wouldn't have enough money to eat or fill his gas tank, Colvin switched to working for a personal-fitness company. His job was to upsell existing customers to products like meal plans and training programs. Right off the bat, he was making $150 a day. But by the end of October, Colvin was miserable: He could no longer muster the moral blindness required to push products he thought were both useless and exorbitantly priced. "I was closing deals, and I realized I was completely fucking over customers," he says. "That's really what pissed me off, because at the end of the day I'm trying to do the right thing." So he quit and found another sales position at a headhunter of sorts, a company that purports to find high-paying tech jobs for its clients. Colvin can't say more because of a nondisclosure agreement, but he does tell me the first paycheck he received in November was the biggest of his life—more than enough to put him back on decent financial footing. He is now saving up to buy some personal coaching services. (Colvin estimates that he has cumulatively spent around $30,000 on self-help books, online courses, and coaching to boost his odds of success.)

Colvin was so busy hustling throughout the fall that he lost all interest in door-to-door solar sales. Although he has never felt any ethical compunctions about selling panels—he truly believes he was helping people save money—he came to view the profession as cultlike for how it isolates and controls its workforce. "I was out of their propaganda," he says. "I could not be brainwashed anymore." He doesn't regret the days he spent knocking on doors—he's now comfortable striking up a conversation with anyone, an essential business skill—but he also can't believe how much the reality of his experience differed from what he'd glimpsed in the solar-bro fantasy. And he can't help but wonder if the fault lies not with the influencers for exaggerating but rather with himself for being weak.

"Every night when I got home, I'd be like, 'Fuck, I don't want to go to sleep, because when I wake up in the morning I got to do this again, I got to do this shit again,'" he says. "That was my mentality. And maybe that was my downfall."

Connor Dougherty also returned to Niagara University, and the knee he shredded in the Segway mishap is almost back to full strength. Several other students have asked him whether they, too, should try out solar for the summer. Though he doesn't counsel against it, he tries to make sure they're genuinely obsessed with personal enrichment. "You have to really, really, really want it bad," he says. "If you don't, you're going to get into it, it's just going to suck, and you're going to quit."

Dakota Williams stuck with Seal Team Six for longer than either of his New York–based compatriots. After Florida, the crew went to Southern California to rip. It disintegrated just a few weeks after the move, however, and its members dispersed back to their hometowns. But Williams—who is coy about how much he earned over the summer and early fall—has nothing but fond memories of his time on the doors.

COURTESY OF AARON COLVIN

"It was a wild experience," he tells me. "Being able to have a team of that many like-minded people together is such an amazing thing to have at such a young age." He is now trying to start his own solar company, though he's short on details about making that happen.

Doug Hotz remains committed to his itinerant solar lifestyle. When I talked to him in September, he was still in Illinois and had just crossed a major milestone: He had sold enough systems to generate a megawatt of electricity. The achievement would soon earn him a special shout-out on the Freedom Pros Instagram account; the post's cover image would bear the title "The Rise of Doug Hotz." He also acknowledged that the work has taxed his emotional endurance at times. "I don't think it ever gets easier," he said. "You got to be immune to it. You got to fix your heart." With many utility providers now trying to slash the rates they'll pay for surplus electricity, Hotz may find it increasingly hard to convince homeowners that solar is a wise decision. But he doesn't seem to have given any meaningful thought to an exit strategy: When I pressed him about what he planned to do next, Hotz hemmed before mentioning he might put together a real-estate portfolio of some sort.

One thing Hotz does know is that he wants Colvin back in the Bouknight fold. He pesters him frequently, urging him to skip a week or two of school to go rip. Colvin has resisted the entreaties so far. He's keeping his focus on school, work, and making videos with titles like "You Don't Need Better Habits, You Need a New Identity" for his YouTube channel (up to 192 subscribers). "If I lose everything, I have no phone, no money, no transportation. I will fall back on door-to-door," he tells me. If it comes to that, he'll start off in the red—he still owes Freedom Pros more than $1,500 for his Holiday Inn bill.

BRENDAN I. KOERNER *is a contributing editor at* WIRED *and the author, most recently, of* The Skies Belong to Us: Love and Terror in the Golden Age of Hijacking.

THE 'CRAZY GUY' WHO BET ON THE IPHONE —

Illustrations by Lola Dupré

Or: When Masayoshi Son

THREE YEARS BEFORE IT EXISTED

Met Steve Jobs

by Lionel Barber

The following is adapted from Gambling Man*, my new biography of Masayoshi Son. As the Japanese founder and CEO of SoftBank, "Masa"—as he is known to friends and rivals alike—is probably the most powerful mogul of the 21st century who is not a household name. He was born in 1957 and grew up on the western island of Kyushu. Barely 5′5″, invariably dressed smart-casual, he lived for several years in California. Though his charm is legendary, he is easily bored. Visitors to his cavernous office in Tokyo, with its Putin-sized long table, can be given five minutes or two hours.*

Masa has been a software distributor, a dotcom investor, and a broadband and mobile phone operator. Now, through the SoftBank Vision Fund, he is the world's largest venture investor. In the past two decades, he has invested in or controlled assets worth $1 trillion. This past December, he met with Donald Trump and pledged to invest $100 billion in the US.

There are a lot of stories about Masa (some told for the first time in the book): how he bankrolled Alibaba, China's internet colossus, after a six-minute speed-dating session with Jack Ma; how he personally supersized hundreds of Silicon Valley startups; how he recruited ex-Googler Nikesh Arora with a $320 million remuneration package signed on a napkin. But my favorite might be this: how Masa plotted with Steve Jobs to take the iPhone global.

AT THE TURN of the 21st century, Masa was the richest man in the world—for three days. After the dotcom crash, he lost 97 percent of his wealth. But he never abandoned his techno-optimism, launching a new broadband service in Japan under the Yahoo brand. His dream was to connect a mobile-phone operator to Yahoo broadband. That way, Japanese consumers could access data, images, and messages all on one digital device. The missing piece was a breakthrough consumer product to compete with his archrival, NTT Docomo, the dominant incumbent in Japan and the most valuable company in the world by market capitalization. The man who supplied the answer was his old friend Steve Jobs.

The relationship between Masa and Jobs was a special one. Both were autocratic mavericks who possessed buckets of self-belief and an uncanny ability to anticipate the future. Both had a deep understanding of aesthetics, technology,

and consumer behavior. Masa's office in Tokyo once had 50 different telephone handsets mounted on a wall, allowing him to study each feature before deciding on SoftBank's own product design. Masa loved to quote Jobs' famous line from Apple's 1997 Think Different advertising campaign: "The people who are crazy enough to think they can change the world are the ones who do."

Masa first encountered Steve Jobs in the mid-1980s at the annual Comdex trade fair in Las Vegas. Sometime in the summer of 1998, they had their first serious conversation under a cherry tree at the Woodside, California, home of Larry Ellison, boss of the Oracle software group and a fellow Japanophile.

Ellison's home was in fact more like a village, a compound of intricately fashioned wooden houses modeled after a Japanese emperor's palace. The 23-acre estate took almost a decade to design and build, including a lake and a waterfall operated by an on-off switch. All the buildings were constructed without nails and had mud-plastered walls designed to withstand a 7.3 Richter-scale earthquake. In total, Ellison's homage to Japanese culture and history was worth around $70 million.

The talk around the table that day was about crazy internet valuations in the stock market. But Masa and Jobs were more interested in what would happen after the dotcom bubble. "I said that I was focused on the internet—and he agreed the internet was the future," Masa says. Both men grasped that a paradigm shift was coming. Movements in the Nasdaq were one thing; the advent of the networked world, in which Apple played a leading role as innovator and SoftBank the part of investor and operator, was quite another.

Apple was, by then, one of the world's most valuable companies, with a suite of smash-hit products from Mac laptops to the iPod. Like Masa, Jobs was paranoid about rivals stealing his ideas. No Apple project was more top secret than the iPhone, the touchscreen smartphone that would sell billions and revolutionize personal communications.

By Masa's account, on a visit to California, sometime in the summer of 2005, he showed Jobs his own sketch of a mobile-enabled iPod that had a large display and used the Apple operating system. The new device, he predicted, would be able to process data and images. Jobs pooh-poohed the idea but could not resist dropping hints about the iPhone.

Jobs: "Masa, don't give me your shitty drawing. I have my own."

Masa: "Well, I don't need to give you my dirty piece of paper, but once you have your product, give it to me for Japan."

Jobs refused to reveal any more detail, but Masa spotted the flicker of a smile on the Apple boss's face. After pressing him further, Masa wangled a follow-up meeting at Jobs' Tudor-style country home in Palo Alto. At that meeting, Masa claims, Jobs agreed in principle to give SoftBank exclusive rights to distribute the iPhone in Japan. "Well, Masa, you are crazy," said Jobs. "We have not talked to anybody, but you came to see me first. I'll give it to you."

Nothing was written down. There was no discussion of price or volume. Just a gentleman's agreement, based on the assumption that Masa would have the financial wherewithal to build or acquire a mobile phone business. "It was super confidential. I never saw the product before it arrived in Japan [in 2008]," Masa claims. "Steve never even told me the name."

The tale has a mythical quality. It assumes Jobs gave his word a full three years before Apple launched the iPhone in Japan. Yet that very promise may well have given Masa the confidence to buy Vodafone Japan, the British-owned "also-ran" that used football icon David Beckham in its marketing campaign. This was a highly leveraged deal—the biggest to date in Asia—but Masa gambled that he had a game-changing product in the pipeline. Whatever the precise chronology, Masa pulled off the distribution deal of the century, which enabled him to build a profitable consumer business in Japan, massively enhancing the SoftBank brand.

On March 17, 2006, Masa clinched his $17 billion deal to buy Vodafone Japan. Two weeks later, Jobs flew to Tokyo, where Masa challenged the Apple boss to uphold his end of the deal. "You didn't give me anything in writing, but I made a $17 billion bet based on your word," he said. "You had better feel a tiny bit of responsibility." Jobs laughed and said, "Masa, you are a crazy guy. We will do what we discussed."

In the spring of 2006 Masa was in an almighty hurry. Mobile phone users in Japan would soon be free to transfer their telephone numbers to rival operators. Unless SoftBank came out with a

MASA PULLED OFF THE DEAL OF THE CENTURY.

THANKS TO THE IPHONE, MASA ESTABLISHED SOFTBANK

compelling new offer on price or product, it risked losing hundreds of thousands of customers to NTT Docomo and the number-two operator, KDDI.

Steve Jobs was also racing against the clock. Three years earlier, he was diagnosed with a rare form of pancreatic cancer, but he'd delayed opening his body for surgery, and the cancer had spread to his liver. From the day of his operation in October 2004, he knew he was living on borrowed time. In public, he insisted to colleagues and investors he was cured. In private, he was more focused than ever, devoting every hour to two secret projects, the iPhone and a new tablet computer called the iPad.

Apple launched its first iPhone, with low-capacity 2G technology, in the US in the summer of 2007. The device was incompatible with the more advanced technologies being used in Japan. For that reason, Japanese telecom giants saw Apple more as a designer and manufacturer of personal computers and music players. They couldn't imagine the Americans producing a game-changing new consumer product in their space. By contrast, Masa grasped that Steve Jobs was about to become the disruptor-in-chief as faster technologies became ascendant not just in Japan but around the world.

In November 2007, the boss of AT&T, distributor of Apple's 2G iPhone in the US, gave the game away. Speaking at the Churchill Club, a business event in Silicon Valley, Randall Stephenson let slip that Apple's next iPhone would be 3G compatible. From then on, even as more than 2 million American consumers enjoyed a groundbreaking experience on a brilliant screen with a flick of their finger, the industry was abuzz with rumors of Apple's next-generation product.

Within weeks, NTT Docomo's CEO, Masao Nakamura, held talks with Jobs at Apple's Cupertino headquarters, followed by Masa himself. This suggests that the exclusive iPhone distribution deal may not have been as watertight as Masa thought, though he later claimed that he was in regular touch with Jobs, exchanging ideas on features for the new iPhone. "I created all the characters, the emoticons that went in the iPhone," he says. "I gave him many ideas."

(The claim is breathtaking, but Masa has always had an artistic bent. He is a decent amateur painter in the early Impressionist style. He also has a fine grasp of consumer behavior. How far Jobs listened to his Japanese friend is another matter.)

Both Masa and Docomo were desperate to get their hands on the new 3G-enabled product that was tri-band, operating on multiple networks and therefore capable of being rolled out all over the world. Docomo's mobile phones operated on a 2-GHz network in Japan's cities. Once in the countryside, where mobile phone towers were less prevalent, mobile users would flip to a more reliable "platinum band" 800-MHz service. There was one drawback: NTT's dual-band network had to be tested thoroughly to ensure the switchover worked smoothly. The risk of a delayed iPhone rollout was therefore serious.

Because risk-averse Japanese regulators favored incumbents, SoftBank had to settle for the inferior 2.1-GHz spectrum, whose advantage was that it was single-band and nationwide, and therefore did not require a switchover.

Technology mattered, but personal chemistry counted even more. "There was a deep connection between Masa and Steve Jobs," says Ron Fisher, SoftBank's man in the US, who attended several meetings between the two men. "Jobs understood that when you are trying to change consumer behavior in a place like Japan, you need a maverick."

On June 4, 2008, Masa announced that SoftBank would sell the iPhone, confirming he had beaten Docomo to the punch. The following month, SoftBank began distribution in Japan. By September 2011, when SoftBank lost its exclusivity over the iPhone, its market share had grown to 23 percent, up from 17 percent at the point when the mobile business was acquired from Vodafone. Steve Jobs' decision to stake all on SoftBank was vindicated, but the success also pointed to Masa's ability to scale up rapidly, overcoming a maze of logistical, regulatory, and marketing obstacles.

Thanks to the iPhone, Masa established SoftBank Mobile as the number one operator in Japan. This was the springboard for his acquisition of a controlling stake in Sprint in 2013, which later merged with T-Mobile, creating a third force in the US telecoms market. Along the way, he reverted from mobile operator to global tech investor. He snapped up Arm Holdings, the UK-based advanced chip designer, and tried to merge it with Nvidia, now the world's most valuable company.

Nvidia founder Jensen Huang remains a good friend and likes to remind Masa that he sold his 5 percent stake in 2019, missing out on an Alibaba-sized deal of a lifetime.

Masa's passion now is artificial general intelligence, whose impact, he believes, will exceed the microchip, the internet, and the mobile phone. "I have to be in this revolution," he told me in our last interview in Tokyo. "I have to participate."

In the summer of 2024, SoftBank invested $500 million in OpenAI. Before that, the Financial Times suggested that Masa was ready to put up $1 billion to develop "the iPhone of artificial intelligence" in partnership with Sam Altman and Jony Ive. This would be the first consumer device in the age of AI. If the vision comes off—and never write off Masayoshi Son—it would be a fitting legacy to his friendship and collaboration with his mentor-collaborator Steve Jobs.

SHUTTERSTOCK, GETTY IMAGES (OPENER)

LIONEL BARBER *is the former editor of the Financial Times.*

Copyright © 2025 by Lionel Barber. From the book *Gambling Man*, by Lionel Barber, published by One Signal Publishers, an imprint of Simon & Schuster, Inc. Printed by permission.

The Sheikh's Gambit

Illustration by
Mia Angioy

by
Bradley Hope

The UAE's chess-obsessed, jiujitsu-loving spymaster controls a $1.5 trillion fortune. America's AI giants are scrambling for a piece of it. Inside the power plays of SHEIKH TAHNOUN BIN ZAYED AL NAHYAN.

VISITORS MIGHT GET A CHANCE TO SPEAK WITH TAHNOUN ONLY AFTER CYCLING LAPS

FOR A WHILE in the mid-2000s, a refrigerator-sized box in Abu Dhabi was considered the greatest chess player in the world. Its name was Hydra, and it was a small supercomputer—a cabinet full of industrial-grade processors and specially designed chips, strung together with fiber-optic cables and jacked into the internet.

At a time when chess was still the main gladiatorial arena for competition between humans and AI, Hydra and its exploits were briefly the stuff of legend. The New Yorker published a contemplative 5,000-word feature about its emergent creativity; WIRED declared Hydra "fearsome"; and chess publications covered its victories with the violence of wrestling commentary. Hydra, they wrote, was a "monster machine" that "slowly strangled" human grand masters.

True to form as a monster, Hydra was also isolated and strange. Other advanced chess engines at the time—Hydra's rivals—ran on ordinary PCs and were available for anyone to download. But the full power of Hydra's 32-processor cluster could be used by only one person at a time. And by the summer of 2005, even the members of Hydra's development team were struggling to get a turn with their creation.

That's because the team's patron—the then 36-year-old Emirati man who'd hired them and put up the money for Hydra's souped-up hardware—was too busy reaping his reward. On an online chess forum in 2005, Hydra's Austrian chief architect, Chrilly Donninger, described this benefactor as the greatest "computer chess freak" alive. "The sponsor," he wrote, "loves to play day and night with Hydra."

Under the username zor_champ, the Emirati sponsor would log in to online chess tournaments and, with Hydra, play as a human-computer team. More often than not, they would trounce the competition. "He loved the power of man plus machine," one engineer told me. "He loved to win."

Hydra eventually got overtaken by other chess computers and was discontinued in the late 2000s. But zor_champ went on to become one of the most powerful, least understood men in the world. His real name is Sheikh Tahnoun bin Zayed al Nahyan.

A bearded, wiry figure who's almost never seen without dark sunglasses, Tahnoun is the United Arab Emirates' national security adviser—the intelligence chief to one of the world's wealthiest and most surveillance-happy small nations. He's also the younger brother of the country's hereditary, autocratic president, Mohamed bin Zayed al Nahyan. But perhaps most important, and most bizarrely for a spymaster, Tahnoun wields official control over much of Abu Dhabi's vast sovereign wealth. Bloomberg News reported last year that he directly oversees a $1.5 trillion empire—more cash than just about anyone on the planet.

In his personal style, Tahnoun comes across as one-third Gulf royal, one-third fitness-obsessed tech founder, and one-third Bond villain. Among his many, many business interests, he presides over a sprawling tech conglomerate called G42 (a reference to the book *The Hitchhiker's Guide to the Galaxy,* in which "42" is a supercomputer's answer to the question of "life, the universe, and everything"). G42 has a hand in everything from AI research to biotechnology—with special areas of strength in state-sponsored hacking and surveillance tech. Tahnoun is fanatical about Brazilian jiujitsu and cycling. He wears his sunglasses even at the gym because of a sensitivity to light, and he surrounds himself with UFC champions and mixed martial arts fighters.

According to a businessman and a security consultant who've met with Tahnoun, visitors who make it past his layers of loyal gatekeepers might get a chance to speak with him only after cycling laps with the sheikh around his private velodrome. He has been known to spend hours in a flotation chamber, the consultant says, and has flown health guru Peter Attia into the UAE to offer guidance on longevity. According to a businessman who was present for the discussion, Tahnoun even inspired Mohammed bin Salman, Saudi Arabia's powerful crown prince, to cut back on fast food and join him in a quest to live to 150.

But in recent years, a new quest has taken up much of Sheikh Tahnoun's attention. His onetime chess and technology obsession has morphed into something far bigger: a hundred-billion-dollar campaign to turn Abu Dhabi into an AI superpower. And the teammate he's set out to buy this time is the United States tech industry itself.

WITH HIM AROUND HIS PRIVATE VELODROME.

IN THE MULTIPLAYER game of strategy that is the AI arms race, the US controls the board right now for a pretty simple reason. A single American hardware company, Nvidia, makes the chips that train the most competitive AI models—and the US government has moved to restrict who can buy these Nvidia GPUs (as the chips are called) outside the country's borders. To take advantage of this clear but jittery lead over China, the CEOs of America's AI giants have fanned out across the globe to sweet-talk the world's richest investors—people like Tahnoun—into financing what amounts to an enormous building boom.

Lurking behind every synthetic podcast and serving of AI slop is a huge, thrumming data center: Hundreds of Hydra-sized server cabinets lined up in tight rows, running computing processes that are tens or hundreds of times more energy-intensive than ordinary web searches. And behind *those* is another set of data centers that train foundational AI models. To keep pace with demand, AI companies need more data centers all over the world—plus the land to put them on, the water to cool them, the electricity to power them, and the microchips to run them. Nvidia CEO Jensen Huang has predicted that tech companies will pour a trillion dollars into new AI data centers over the next five years.

Building out the next phase of AI, in short, is set to require mind-boggling amounts of capital, real estate, and electricity—and the Gulf States, with their vast oil wealth and energy resources, possess all three. Saudi Arabia, Kuwait, and Qatar have all set up major AI investment funds in the past couple of years. But as a home for new data centers and a source of investment capital, the UAE has emerged as a particularly attractive potential partner on a number of fronts—from its sheer wealth to its brand-new nuclear power supply to the relative sophistication of its own AI sector.

But there's a rub: Any American AI partnership with the UAE is, in some way, a relationship with Sheikh Tahnoun himself—and for years many of Tahnoun's most important technology partners have been Chinese.

The pairing was only natural, given Tahnoun's record as a spy chief with vast commercial interests in high-tech state control. Tahnoun spent the early 2020s forging deep business and personal ties with Beijing, to the point that some products sold by G42 came to be nearly indistinguishable from Chinese ones. A G42 subsidiary called Presight AI, for one, sold surveillance software to police forces worldwide that bore a close resemblance to systems used by Chinese law enforcement. The Chinese telecom giant Huawei's footprints in G42 went even deeper. Early in the generative-AI boom, Huawei's engineers moved freely through Abu Dhabi's most sensitive tech facilities as they designed massive AI training centers.

But in August of 2023, Washington threw down a gauntlet. It restricted exports of Nvidia GPUs to the Middle East—the very hardware that Abu Dhabi needed to realize its own AI ambitions. No company using Huawei equipment would get access. So Tahnoun pivoted, hard. In early 2024, G42 announced it was severing ties with China and would rip out Chinese equipment. Chinese nationals began quietly departing Abu Dhabi's tech sector.

At the same time, US and UAE leaders went into a fevered phase of mutual courtship. Scores of public relations consultants, lawyers, and Beltway lobbyists set about portraying Tahnoun as a safe pair of hands in which to place US technology and trust. Marty Edelman, the emirate's most trusted American lawyer, helped orchestrate the strat-

Clockwise from top: Sam Altman, Sheikh Tahnoun bin Zayed al Nahyan, and Satya Nadella.

egy from New York. The UAE's ambassador to Washington, Yousef Al Otaiba, deployed his considerable political capital to vouch for Tahnoun. Meanwhile, US government and tech leaders tried to maneuver what promised to be a huge spigot of Emirati money into the United States, to feed AI companies' need for investment.

The first sign that the two sides had reached an understanding was, bizarrely, a deal that flowed in the opposite direction. In an unusual agreement brokered largely by officials in the Biden administration, Microsoft announced in April 2024 that it was investing $1.5 billion in Tahnoun's G42, acquiring a minority stake in the company. According to remarks by a Biden official who helped steer the agreement, the objective was to get G42 to "work with Microsoft as an alternative to Huawei." In the first phase of the relationship, G42 would gain access to Microsoft's AI computing power on its Azure cloud platform, at a data center inside the UAE. And Brad Smith, Microsoft's president, would join the board of G42—a kind of American chaperone inside the company.

The big gushers of cash *from* the UAE were still to come, as were any Nvidia chips for Abu Dhabi. But the Microsoft deal amounted to a US government seal of approval for further business with the Emirates. In the summer of 2024, Tahnoun embarked on a charm offensive across the United States, with a visit to Elon Musk in Texas and a jiujitsu session with Mark Zuckerberg. Meetups with Bill Gates, Satya Nadella, and Jeff Bezos followed in quick succession. The most important meetings, however, took place at the White House, with figures like national security adviser Jake Sullivan, Commerce secretary Gina Raimondo, and President Joe Biden himself.

As the frenzied campaign to reframe Tahnoun and G42's image seemed to gain traction—and the US seemed poised to loosen export controls on advanced chips for the UAE—some inside the US national security establishment were, just as frantically, waving caution flags. One of their fears is that the intellectual property of the United States could still leak to China. "The Emiratis are the consummate hedgers," a former senior US security official told me. "The question everyone has: Are they playing both sides?" In a July open letter, US congressman Michael McCaul, the chair of the House Foreign Affairs Committee, called for "significantly more robust national security guardrails" to be placed on the UAE before the US exported any sensitive technology to the country.

But the other fear is of the UAE itself—a country whose vision of using AI as a mechanism of state control is not all that different from Beijing's. "The UAE is an authoritarian state with a dismal human rights record and a history of using technology to spy on activists, journalists, and dissidents," says Eva Galperin, director of cybersecurity at the Electronic Frontier Foundation. "I don't think there is any doubt that the UAE would like to influence the course of AI development"—in ways that are optimized not for democracy or any "shared human values," but for police states.

THIS PAST SUMMER, around the same time that Tahnoun was barnstorming through America's dojos and C-suites, Mohammed bin Salman, the crown prince of Saudi Arabia, was hosting some of the world's leading technology thinkers—including former Google CEO Eric Schmidt—at his vast South African hunting estate called Ekland. They visited game parks, were waited on by butlers, and discussed Saudi Arabia's future role in AI.

Not long after, Schmidt made a trip to the Biden White House to air his concerns that the US cannot produce enough electricity to compete in AI. His suggestion? Closer financial and business ties with hydroelectric-rich Canada. "The alternative is to have the Arabs fund [AI]," he told a group of Stanford students on video the following week. "I like the Arabs personally ... But they're not going to adhere to our national security rules."

Those concerns over the Gulf States' reliability as allies (and their tendencies to engage in unsavory practices like targeting journalists and waging proxy wars) haven't stopped their money from flowing into US tech companies. Earlier in the year, Saudi Arabia's sovereign Public Investment Fund announced a $40 billion fund focused on AI investments, aided by a strategic partnership with the Silicon Valley venture capital firm Andreessen Horowitz. Kingdom Holding, an investment firm run by a Saudi royal who is deeply obedient to the crown prince, has also emerged as one of the biggest investors in Elon Musk's startup xAI.

The New York Times wrote that the new Saudi fund made that country "the world's largest investor in artificial intelligence." But in September, the UAE eclipsed it: Abu Dhabi announced that a new AI investment vehicle called MGX would partner with BlackRock, Microsoft, and Global Infrastructure Partners to pour more than *$100 billion* into, among other things, building a network of data centers and power plants

GETTY IMAGES

across the United States. MGX—which is part of Tahnoun's sovereign wealth portfolio—has also reportedly been in "early talks" with OpenAI CEO Sam Altman about what Altman hopes will be a 5 to 7 *trillion*-dollar moonshot chipmaking venture to create an alternative to Nvidia's scarce GPUs.

The spigot of Emirati cash was now open. And in turn, within days of the MGX announcement, the news site Semafor reported that the US had cleared Nvidia to sell GPUs to G42. Some of the chips were already being deployed in Abu Dhabi, the news site reported, including "a sizable order of Nvidia H100 models." The US had finally given Tahnoun some of the hardware he needed to build his next Hydra. Which raises the salience of two questions: What kind of game is Sheikh Tahnoun playing this time? And how exactly did he get control of so much wealth?

THEY GOT TO HUMAN RIGHTS ACTIVIST AHMED MANSOOR THROUGH HIS CHILD'S BABY MONITOR.

ON SOME LEVEL, nearly every story about royalty in the Gulf is a story about succession—about paternalistic families trying to ward off external threats, and the internal rivalries that crop up when inherited power is up for grabs.

Tahnoun and his brother Mohamed are both sons of the UAE's first president, Zayed bin Sultan al Nahyan—an iconic figure revered as the father of the nation.

For much of Zayed's life, what is now the city of Abu Dhabi was an austere, seasonal fishing village with a harsh climate, a brackish water supply, and a nomadic population of about 2,000 people. The rest of the emirate had several thousand more Bedouin inhabitants. As rulers, the al Nahyans were paid in tributes and taxes, and served as custodians of the emirate's shared resources. Their lifestyle wasn't all that much better than that of their fellow tribesmen. But still it was dangerous at the top. Before Zayed, two of the last four sheikhs of Abu Dhabi had been assassinated by their brothers; another had been killed by a rival tribe.

Zayed, for his part, seized power from *his* older brother in a bloodless coup aided by the British in 1966—just as oil and its transformative wealth started flowing into Abu Dhabi. Where his elder sibling resisted spending Abu Dhabi's new fortune, Zayed embraced modernization, development, and a vision for uniting several tribes under a single state—setting the stage for the creation of the United Arab Emirates in 1971.

When the UAE was formed, Tahnoun was almost 3 years old. A middle child among Zayed's 20-odd sons, Tahnoun is one of the so-called Bani Fatima—the six male children of Zayed's most favored wife, Fatima, and his most important heirs. Zayed groomed these sons to go abroad, become worldly, and take up the mantle of the UAE's future. But even as he established a state that carefully distributed new oil wealth among Abu Dhabi's Bedouins, Zayed steered his heirs away from business and self-enrichment. Perhaps mindful of the assassinations and coups that preceded him, Zayed wanted to ward off the perception that the al Nahyans were benefiting unfairly from their role as custodians of the country.

In the mid-1990s, Tahnoun found himself in Southern California. One day in 1995 he walked into a Brazilian jiujitsu dojo in San Diego, asking to be trained. He introduced himself as "Ben" and, according to an article on Brazilian Jiu-Jitsu Eastern Europe's website, went out of his way to show humility, arriving early and helping to clean up. Only later did he reveal he was a prince of Abu Dhabi.

As Zayed's health failed in the late 1990s, his sons began to step into bigger roles—and to break away from his guidance by starting businesses of their own. It was around this time that Tahnoun started his first holding company, the Royal Group, the entity he would use to incubate the Hydra chess computer. He also started a robotics company that produced a humanoid robot, REEM-C, which in turn was named after an island in Abu Dhabi where he made a series of real estate investments.

When Zayed died in 2004, Tahnoun's eldest brother, Khalifa, became the new ruler of Abu Dhabi and president of the UAE, and Mohamed, the eldest of the Bani Fatima, became the crown prince. The other sons took on an array of official titles, but their roles were more ambiguous.

As a reporter based in Abu Dhabi from 2008 to 2011, I fell into the pastime of "sheikh watching," a Gulf-royal version of Kremlinology that involves reading between the lines of announcements and moves, and keeping in touch with palace insiders who occasionally betray a few secrets. At the time, Tahnoun seemed like a fascinating dilettante very far from actual power—he held no serious role in the government and seemed preoccupied with growing his fortune, dabbling in technology, and changing the skyline of Abu Dhabi.

That all changed when Tahnoun stepped up as the family member with the greatest knack for wielding a growing tool for nation-states: cyberespionage.

On July 2009, thousands of BlackBerry users across the UAE noticed their phones growing dangerously hot. The culprit was a supposed "performance update" pushed by Etisalat, the UAE's largest telecom provider. In reality, it was spyware—an early experiment in mass surveillance that backfired spectacularly when BlackBerry's parent company exposed the scheme.

I experienced this myself one day on a trip from Abu Dhabi to Dubai, bringing my BlackBerry to my ear and finding it so hot it nearly burned my face. It was my first direct, personal experience of the UAE's hidden police state. But shades of its existence are apparent to anyone who has spent time in the Gulf States. Violent crime is nearly nonexistent, and life can be smooth, even luxurious. But in moments of stress or risk, these countries can become very dangerous places, especially for residents who dare hint at dissent.

The revolutions of the Arab Spring in 2011—which saw four Middle Eastern autocrats topple in the face of massive, Twitter-organized crowds—only heightened the UAE's resolve to stamp out any green shoots of democracy. When a handful of Emirati activists made their own mild case for human rights and political reform in 2011, the state convicted them on charges of royal defamation. Then it promptly pardoned and released them into a life of surveillance and harassment.

While there's no evidence that Tahnoun had any direct involvement in the BlackBerry debacle, he would soon come to oversee an empire capable of far more sophisticated spycraft. In 2013, he was named deputy national security adviser—around which time the UAE's ambitions to spy on its residents and enemies started to reach an industrial scale.

For several years at that point, the UAE had been running a secret program known as Project Raven, formed in 2008 under a contract with consultant and former US counterterrorism czar Richard Clarke. The US National Security Agency had blessed the arrangement, meant to give the UAE state-of-the-art surveillance and data analysis capabilities to contribute to the war on terror. But around 2014, Project Raven took a new tack. Under the new management of a US contractor called CyberPoint, it recruited dozens of former US intelligence operatives with a simple pitch: tax-free salaries, housing stipends, and a chance to fight terrorism.

But fighting terrorism was, in fact, only part of the agenda. Within two years, the project's management changed hands yet again to a company called DarkMatter, effectively an Emirati state-owned firm. Emirati intelligence leaders placed Project Raven under their own roof—just two floors from the UAE's own version of the NSA. The message to Project Raven's employees: Join DarkMatter or leave.

For those who remained, the job included tracking journalists, dissidents, and other perceived enemies of the state and the royal family. Among the key American operatives who stayed on with DarkMatter was Marc Baier, a veteran of the NSA's elite Tailored Access Operations unit. Emails later showed Baier chatting with the Italian surveillance

firm Hacking Team, describing his UAE clients as "the most senior" and demanding white-glove service as he shopped for hacking tools. Other former NSA hackers on the Project Raven team got busy developing custom attacks for specific devices and accounts.

They got to human rights activist Ahmed Mansoor—one of the Emiratis who had blogged in favor of democratic reform during the Arab Spring—through his child's baby monitor. It was 2016, and Mansoor had grown used to his devices behaving strangely: phones that grew mysteriously hot, suspicious text messages, drained bank accounts, according to a person familiar with his experiences. His phone had even once been infected with Pegasus spyware, a notorious product made by the Israeli cyber-arms firm NSO Group. But the baby monitor was new. Unknown to him, operatives at DarkMatter were using it to listen to his family's private conversations.

In another project, DarkMatter assembled what it called a "tiger team"—a task force to install mass-surveillance hardware in public places. These probes would be capable of "intercepting, modifying, and diverting" nearby traffic on UAE's cellular networks, according to an Italian security researcher who was being courted by DarkMatter in 2016. "To operate as we want them to, these probes are going to be put everywhere," the prospective hire, Simone Margaritelli, was told in an email during his recruitment process.

And who was ultimately overseeing all this activity? In early 2016, Tahnoun had been named national security adviser, which placed him fully in charge of UAE intelligence. And there are signs that the ultimate controlling party over DarkMatter was none other than Tahnoun's investment firm, the Royal Group.

Eventually, I may have become a target of the UAE's hacking apparatus myself. In 2021 a coalition of journalists called the Pegasus Project informed me that my phone had been targeted by the UAE using Pegasus spyware in 2018. At the time I'd been reporting on a global financial scandal that implicated a member of the Abu Dhabi royal family—Sheikh Tahnoun's brother, Mansour. The UAE denied that it had targeted many of the people identified, including me.

The hacking and tracking of American citizens would eventually become a red line for some of Project Raven's former intelligence agents. "I am working for a foreign intelligence agency who is targeting US persons," a Project Raven whistleblower named Lori Stroud would tell Reuters in 2019. "I am officially the bad kind of spy."

The ensuing scandal resulted in US federal charges for several of its ex-NSA leaders, including Baier. DarkMatter and Project Raven, meanwhile, were painstakingly broken down, scattered, rebranded, and then subsumed into other companies and government departments. Many of their pieces and personnel eventually moved under the umbrella of a single new entity founded in 2018—called G42.

G42 has denied publicly it had any connections to DarkMatter, but the threads aren't hard to see. One DarkMatter subsidiary, for instance, was an entity that worked especially closely with Chinese companies. Not only did it eventually appear to become part of G42, but the subsidiary's CEO, Peng Xiao, went on to become the CEO of G42 itself.

A Chinese speaker who studied computer science at Hawaii Pacific University, Xiao's past is otherwise a black box. Though he was a US citizen for a time, he eventually surrendered his US passport for UAE citizenship—an exceedingly rare honor for a non-Emirati. And under a subsidiary of G42 called Pax AI, Xiao helped produce the next evolutionary step in DarkMatter's legacy.

One morning in 2019, millions of phones across the UAE lit up with a cheery notification. A new messaging app called ToTok promised what WhatsApp couldn't—unrestricted calling in a country where the voice-calling function of most chat apps was blocked. Within weeks, it had shot to the top of Apple's and Google's app store even beyond the Emirates. But there was a catch. Each time someone tapped the app icon, the user gave the app access to everything on that phone—photos, messages, the camera, voice calls, location.

Data from millions of phones flowed to Pax AI. Like DarkMatter before it, Pax AI operated from the same building as the UAE's intelligence agency. The ToTok app itself came from a collaboration with Chinese engineers. For a regime that had spent fortunes on NSO Group's Pegasus spyware and DarkMatter's hacking teams, ToTok was elegantly simple. People didn't have to be laboriously targeted with spyware—they were eagerly downloading it.

Representatives of ToTok adamantly denied that their product was spyware, but an engineer who worked at G42 at the time told me that all of the voice, video, and text chats were analyzed by AI for what the government considered suspicious activity. (Among the easiest ways to get flagged: placing calls to Qatar, then a rival in a mutual cyberwar, from within the UAE.) G42 declined to comment on specific details for this story but responded to WIRED with an overall statement: "G42 is steadfast in its commitment to responsible innovation, ethical governance, and delivering transformative AI solutions globally."

Inside G42, staff sometimes refer to Tahnoun as "Tiger," and his orders can swiftly change the company's course. One man-

THESE MOMENTS OF DYNASTIC

date from Tiger, according to a former engineer, was to build him either a business that generates $100 million in revenue a year or a technology that makes him famous. In the workplace, there is no mistaking that the conglomerate has one foot inside the security state: Most of the company's technology and data centers are based in Zayed Military City, a restricted-access zone, and all G42 staff need to pass security clearances to get hired.

Through G42, government intelligence services, and other cybersecurity entities, Tahnoun had effectively come to oversee the UAE's entire hacking apparatus. But at a certain point, control over the UAE's spy sector and the industry around it wasn't enough for Tahnoun.

BY THE TURN of the decade, Tahnoun had ambitions for more political power over the whole of the Emirates. His sibling Mohamed had been serving as the de facto leader of the country since their brother President Khalifa suffered a major stroke in 2014. Now, as Khalifa's health continued to fail and Mohamed's formal accession to the throne was becoming imminent, the position of the next crown prince was up for grabs.

These moments of dynastic uncertainty can be dangerous. In Saudi Arabia, the sons of the country's first king, Abdulaziz al-Saud, have taken the throne one after the other ever since the 1950s. By the time the current king, Salman, took power in 2015, he was 80 years old, and the ranks of potential heirs below him had become crowded, corrupt, and rife with internal tensions. That's why, in 2017, King Salman's son Mohammed, or MBS, struck out to eliminate his rivals—mostly cousins and their aides—by arresting them in a purge, asserting himself as the new strongman.

In Abu Dhabi, Tahnoun's argument in the succession debate, according to royal insiders, was that his brother Mohamed should follow precedent and allow the sons of Zayed to rule while they were of good health and sound mind—a system that would place him in contention. But Mohamed was adamant that his own son Khalid should be crown prince, a signal to the country's large youth population that they were represented high up in government.

Tahnoun argued his point for more than a year, even providing evidence that Mohamed's plan contradicted their father's request for succession. But in the end, the brothers worked out a deal. Tahnoun agreed to set aside his ambition to be the crown prince or ruler—in exchange for vast power over the country's financial resources. It was this bargain that would ultimately put him in charge of $1.5 trillion in sovereign wealth.

In 2023, Tahnoun was made chairman of Abu Dhabi Investment Authority, the largest and most important sovereign wealth fund in the country. Khalid's appointment as crown prince was announced weeks later.

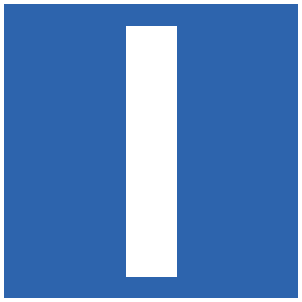
Officially, Tahnoun got a modest bump in title to become deputy ruler along with his brother Hazza. But those dealing with Abu Dhabi over the past few years say the same thing: Tahnoun's powers have increased by an extraordinary degree, and not just in finance. He has also taken over diplomacy with Iran, Qatar, and Israel, and even handled the United States for a time when relations with the Biden administration declined. "Whenever there's a difficult file, it's given to Tahnoun," says Kristian Coates Ulrichsen, a scholar of Gulf politics at the Baker Institute for Public Policy at Rice University. That skill has helped him "grow his power enormously," Ulrichsen says.

As Tahnoun has gained access to new resources, he has plowed them into his maze of investments and conglomerates. Under the Royal Group, he controls not only G42 but also another conglomerate called the International Holding Company—itself a massive consortium that employs more than 50,000 people and

UNCERTAINTY CAN BE DANGEROUS. ++

owns everything from a Zambian copper mine to the St. Regis golf club and island resort in Abu Dhabi. He also oversees First Abu Dhabi Bank, which is the UAE's largest lender, and another multibillion-dollar sovereign wealth fund called ADQ.

And now, with a growing position in the global AI arms race, Tahnoun's empire also includes a stake in the future of humanity.



IN DECEMBER, THE US government confirmed it had authorized the export of some Nvidia GPUs to the UAE—specifically to a Microsoft-operated facility inside the country. At G42, subsidiaries have kept multiplying: Space42 focuses on using AI to analyze satellite imaging data; Core42 aims to build massive AI data centers across Abu Dhabi's deserts.

Inside the US security establishment, many remain worried about the US tech sector's increasingly close relationship with the UAE. One unsettling fact, according to a former security official, was that China made no protest over Tahnoun's decision to tear out all of Huawei's equipment and sever ties with the company in 2023. "They didn't raise a peep," the official told me. When Sweden banned Chinese companies Huawei and ZTE from its 5G rollout in 2020, Beijing's foreign ministry spoke out against it, and Swedish telecom giant Ericsson lost huge amounts of business in China in retaliation. By contrast, G42's big breakup with China somehow got a pass—suggesting to the official that there may be some kind of backdoor understanding between the two nations.

In a statement to WIRED, US congressman Michael McCaul reiterated his concern that technology could leak to China through the UAE's deal with Microsoft, and stressed the need for tighter guardrails. "Before advancing this partnership and others like it further, the US must first establish robust, legally binding protections that apply broadly to AI cooperation with the UAE," he said.

But even if those guardrails were put into place, the UAE has a history of finding ways to do what it wants. I'm reminded of the briefings that executives from Israel's NSO Group gave to journalists for a time in the early 2010s, assuring them that Pegasus spyware had safeguards against abuse—and that Pegasus clients (like the UAE) would be blocked from targeting US and UK phone numbers (like mine). And I'm reminded of the blessings that the NSA gave to Project Raven at its inception.

While Donald Trump and his new administration are expected to continue with export controls over GPU chips, the view from people inside Tahnoun's orbit is that the new administration will likely be much more "flexible" about the UAE's AI ambitions. Plus at least one Trumpworld insider has a vested interest in the relationship: The UAE, Qatar, and Saudi Arabia have together contributed more than $2 billion to Jared Kushner's private equity fund, guaranteeing the fund some $20 million to $30 million in annual management fees alone. Abu Dhabi's leaders have consulted with Kushner and other Trump insiders, including former secretary of state Mike Pompeo, on AI policy, according to people familiar with the discussions.

Center: Sheikh Zayed bin Sultan Al Nahyan, founding father of the UAE. Top right: G42's Abu Dhabi headquarters.

While the continued supply of GPUs could be a remaining source of leverage for the US, it could be a declining one as rival chips improve. Some analysts argue that, even now, export controls are not the source of strength that American officials think they are. "AI is not like nuclear power where you can restrict the materials," says computer security expert Bruce Schneier. AI technology is already highly distributed, he says, and the idea that American companies are at a huge and absolute advantage is a mirage.

Now that Tahnoun has been "brought inside the tent"—and given a key and expanding role as an investor of choice for the current winners in the AI race—he has certainly succeeded in gaining some leverage of his own. And those who keep needing money from the UAE may be happy to see it gain more clout. At a World Government Summit last year, Sam Altman suggested that the UAE could even serve as the world's "regulatory sandbox" for AI—a place where new rules for governing the technology can get written, tested, and advanced.

Meanwhile, the Middle East could be entering a period, like the aftermath of the Arab Spring, when rules are largely off the table. Now that rebels have taken over Syria from the regime of Bashar al Assad, the Gulf States—especially the UAE—will be anxious to increase surveillance to avoid any spread of Islamist unrest. "We're going to see more repression, more use of surveillance technologies," says Karen Young, a senior fellow at the Middle East Institute in Washington. And when it comes to managing threats and winning games of strategy, Tahnoun likes to make sure he's playing with the most fearsome machine in the world.

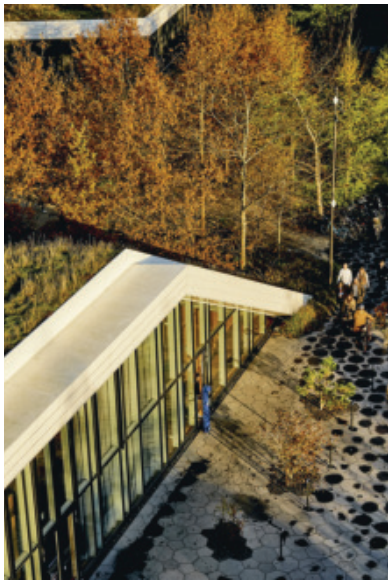
BRADLEY HOPE *is a cofounder of Project Brazen and coauthor of* Billion Dollar Whale *and* Blood and Oil.

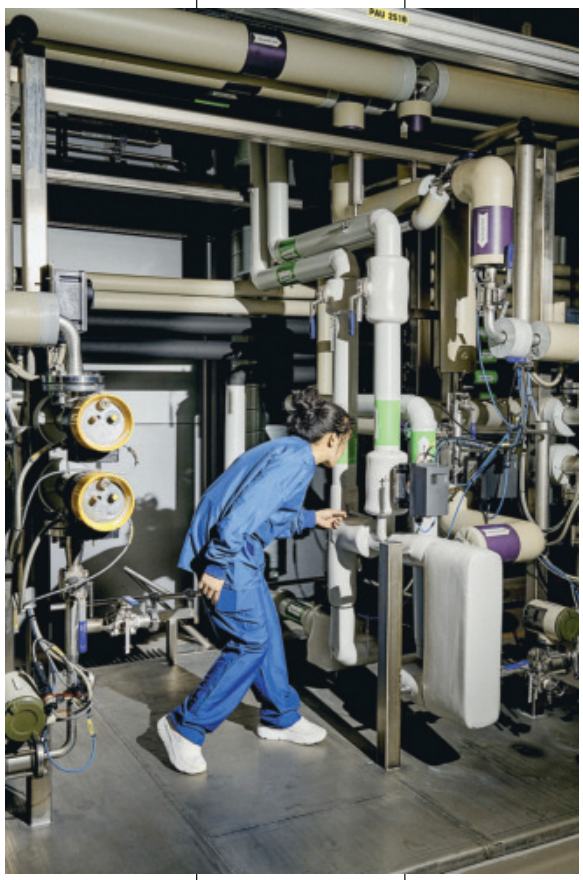
Sugar

Inside the rise of Novo Nordisk, the world's slimming juggernaut, and its risky future—one that has its CEO scared as hell.

Paddy

by Virginia Heffernan





055

Photographs by
Steven Achiam

On

A FRIGID DAY in Copenhagen when Erik Hageman was 2 years old, he tripped over his wooden clogs. His face smashed into the floor. In the emergency room, a surgeon repaired his tongue, which had split, but in the months while he was recuperating he shrieked nonstop for water. His urine turned sticky and sweet. The doctor diagnosed diabetes, type 1, the autoimmune condition in which the body attacks its own pancreas.

This was 1942. The Nazis occupied Denmark and eugenics was their first medical principle. Trauma like Erik's fall, some suggested, activated diabetes, and the bloodline of the diabetic was poisoned. Three short weeks of neglect, the doctor promised Hageman's parents, and their little son would perish of ketoacidosis or starvation. "The best you can do is do nothing," the doctor said.

Still, Hageman's parents felt—and this was rebellious, given the master-race ideology that crackled through the Nazi Weltanschauung—that their boy deserved to live. When Hageman's father, a custodian at a sports college, told his coworkers his son had diabetes, one of them knew a guy.

Hans Christian Hagedorn, short-tempered physician. Wild tufts of hair. At Nordisk Insulinlaboratorium just outside of Copenhagen, he was refining insulin from the pancreases of cows and pigs to make it work better for humans. During a long period under Hagedorn's care, Erik Hageman started to get twice-daily injections of a fine precipitate of protamine insulin, a breakthrough formulation that prolonged insulin's effects in the body. Neutral Protamine Hagedorn is still on the World Health Organization's list of essential medicines.

By the time he was 5, Hageman was injecting himself with a wide-gauge needle as broad as—he pantomimed to me, in a kind of diabetic fish story—a tree trunk.

At 85, Erik Hageman is a dapper grandfather of surpassing warmth, compact like a tap dancer. He's one of the longest-living diabetics in Denmark. We spent an afternoon together in a modernist mansion in Copenhagen called Domus Hagedorn, which is owned by Novo Nordisk, the Danish firm that grew from Hagedorn's lab. "Hagedorn was rather crazy," Hageman told me. But without the doctor's care, he explained, "I'd be blind and I'd have to cut off my legs and have kidney failure." The now-global company makes half the insulin in the world. Yet today it's rich and famous for producing Ozempic, the megahit semaglutide drug.

Just before visiting Erik Hageman, I met Lars Fruergaard Jørgensen, who has presided over the company's epochal metamorphosis, at the company's headquarters in Bagsværd, a suburb of Copenhagen. The building's design, with its giant helix-like indoor spiral staircase, is inspired by insulin—the molecule, the miracle. In a conference room flooded with light, Jørgensen spoke fondly of Hageman, the company's poster child. Novo's executives had clearly presented Hageman to convince me that the company's greatest achievement is not its stratospheric valuation but its century-long record of saving lives with insulin.

But at Novo these days, semaglutide blocks out the sun. Ozempic was the world's second-highest-selling drug in 2024. It works extremely well for type 2 diabetes, a non-autoimmune disorder in which the body makes poor use of insulin. And one effect of semaglutide, as we all know now, has been the box-office draw from day one: appetite suppression. The drugs that contain it—especially Ozempic and its more powerful sister Wegovy—have transformed Novo into a global slimming juggernaut. In 2023, the company surpassed Parisian luxury brand LVMH to become the richest company in all of Europe, hitting the ludicrously high market cap of $424 billion. In 2024, Novo took a punch in the face, but it ended the year still richer by market cap than Bank of America, Coca-Cola, and Toyota.

Beyond the dazzling before-and-afters, though, Jørgensen is looking at a tricky future, parts of which, he told me, "scare the hell" out of him.

Though Novo has as its controlling shareholder the largest altruistic foundation in the world, it has to act coldly and tactically, like an oil or defense company. The demanding semaglutide business has become a mean ouroboros: the insatiable market, exorbitant manufacturing costs, competition from Eli Lilly, pricing pressure from governments, and the private-insurance dystopia in the US—by far Novo's biggest market, where some 15 million people now take semaglutide. At the same time is the moral crux. Semaglutide alone almost never works for the 8.4 million type 1 diabetics around the world. What keeps Jørgensen up at night is his

fear that, the way drug manufacturing and American health care companies and global markets work, his company might not be able to do right by its original patients. These are the non-Hollywood patients—the ones who, like Eric Hageman, can't live without insulin.

++

FOR ITS FIRST 75 years, Novo was indispensable but unknown, a producer of insulin, an anonymous commodity. In 1991 the obscurity started to lift. That year, Lotte Bjerre Knudsen, a Danish chemical engineer, was seeking a treatment specifically for type 2 diabetes, which accounts for as much as 95 percent of all cases of the disease. Over the next 18 years, she led a Novo team in developing an exquisitely cool medicine for type 2 called liraglutide. Liraglutide is an analogue of a human hormone called GLP-1, for glucagon-like peptide-1. After humans eat, we very, very briefly secrete GLP-1 in the brain stem and the gut.

GLP-1 can be seen as a tranquilizer for the flesh, a soother of deep and primitive longings. GLP-1 says to the body: *peace.* Food is available. But GLP-1 in its natural form only murmurs these soothing blandishments for a minute or two. It affords the hungry soul a glimpse of OK-ness, but a fleeting one.

The challenge for Knudsen was to build a dupe of GLP-1 that would *persist*, a GLP-1 that would let a patient feel blood-sugar equanimity longer. Knudsen pulled this off by snapping a fatty acid onto a precise spot on a chain of amino acids. It's incomprehensibly more complex than that, but eureka anyway: Knudsen had something that acted like our natural GLP-1 hormone but stayed in the system for a full day.

Liraglutide was approved in the US for type 2 diabetes in 2010 and for weight loss in 2014. But a daily injection could put patients off. So Novo assembled a new team of researchers that included Jesper Lau, a peptide and protein engineer, who invented *semaglutide*, from the French *semaine*, for "week." Semaglutide suffuses the body and brain for seven days.

A weeklong reprieve from blood sugar turbulence, and from the ravenousness that defines modern existence. A single shot and you feel like you've just eaten always. In 2018, the world learned Novo Nordisk's name when the company released semaglutide as Ozempic. Novo even created a jingle. *Oh oh oh Ozempic!*

The cheers for semaglutide would have drowned out the cheers for insulin a hundred years ago. Yes, nausea, vom-

Erik Hageman has lived with type 1 diabetes, and has been on insulin, for more than 80 years.

GETTY IMAGES (OZEMPIC)

iting, diarrhea—these are not uncommon side effects. And some rare but terrifying ones like possible blindness have been identified. But semaglutide is generally, as they say, "well tolerated." True believers see a panacea: a treatment for alcoholism, heart disease, polycystic ovary syndrome, Alzheimer's, Parkinson's, sleep apnea, liver disease, and a newly identified mental obsession with eating and dieting known as "food noise," which is especially common in the US.

Most Danes have never even heard the Ozempic jingle. Like nearly every country on earth except the United States and New Zealand, Denmark prohibits advertising prescription pharmaceuticals to consumers. With its weight-loss fetish and direct-to-consumer marketing, the US was clearly Novo's Troy, primed to be sacked. Under CEO Jørgensen, Novo hired media giant Wavemaker, whose clients include L'Oréal and Tiffany. Novo began spending reportedly close to $200 million a year flogging semaglutide. Americans were soon hooked on the jingle, the relief, and the compliments.

To make money stateside means navigating through the dark woods of both America's health care quagmire and its thorny diet culture. One of the biggest tasks for Novo was to throw off the impression that semaglutide is a vanity drug. Styling it like insulin, a sober injection for a disease, rather than like speed, a candy-colored pill for weight loss, was the only way to get it covered by fickle American insurance companies. And if semaglutide could be covered, especially while under patent, it would be exponentially more bankable.

Thus, Novo Nordisk joined the ongoing effort to fire-hose the world with the word *obesity*, not to refer to body size but to a metabolic disease. By the time Wegovy—specifically for weight loss, with a dosage of semaglutide 2.4 times higher than the Ozempic dosage—was approved in 2021, obesity was in full swing as its own affliction, and semaglutide swooped in as the cure.

Not long after, the FDA handed Novo yet another victory when it approved Wegovy to "reduce the risk of serious heart problems" in heavier-weight people. The agency added that 70 percent of American adults fall into this category.

^^ **Lars Fruergaard Jørgensen, the fifth CEO of Novo Nordisk in a century, has overseen the most rapid, drastic shift in the company's history.**

++

IN SPITE OF the market ruckus about semaglutide, insulin still seemed like the favorite child at Novo's headquarters. Engineered human insulin is a pharmaceutical jewel, a priceless DNA sequence rigged up in 1978 and sometimes described as biotech's first "golden molecule." It's also a so-called biologic. Biologics are medicines derived from big, complex, living molecules: bacteria, blood, yeast, viruses, and animal and plant matter. They are costly and complex to create.

Insulin at Novo is made from baker's yeast, a microorganism with a relatively high biomass that's chock full of protein, essential amino acids, and minerals. It's an ideal workshop for a DNA tinkerer. At the same time, built molecules, the ones like insulin that express themselves in yeast, are maddeningly idiosyncratic.

Monika Nøhr Løvgreen, a research scientist I spoke to in her lab at Novo, told me her love affair with engineered molecules can get tumultuous. "It's not enough for a molecule to

give me the biology I need. I need something I can inject without getting red or itchy, that doesn't degrade when I store it, that's well behaved in the solution." Løvgreen described some molecules as "prima donnas" while others are well behaved, elegant, and even queenly.

In the insulin and semaglutide labs, engineering a molecule correctly is everything, Brian Vandahl, Novo's head of global research technology, told me. That's where scientists create "the single cell that starts the whole release culture, that lives in those big tanks." From Bagsværd, he gestured vaguely in the direction of the company's giant drug-manufacturing facilities.

Whether for insulin or other biologics, it's not cheap to grow, ferment, and purify living cells. (Though it is made in a similar way as insulin, the engineered protein in semaglutide contains fewer than 40 amino acids, so the FDA classifies it as a small-molecule drug, rather than a biologic.) Like pets or people or gardens, microorganisms need to be lovingly cared for, which requires patience, sugar, climate control, and constant cleaning with substances that don't kill microorganisms. In West Lebanon, New Hampshire, where Novo has a secretive biologics facility, one local referred to the plant as "the place where they teach fleas to sing and dance."

By contrast, blockbuster tablets like Prozac, Viagra, Oxycontin, Tylenol, Lipitor are, relatively, a piece of cake—and cheaper to make. They're usually derived from nonliving molecules with lower biomass, mostly chemical compounds. Hardy and inanimate, these chemicals don't need to be managed with kid gloves. "It's easier to control chemistry," Vandahl said. "But I'm more fascinated by biology."

Now that Novo is responsible for the blockbuster semaglutide drugs and half the world's insulin, it is putting tens of billions of dollars into expanding its production facilities. Each one costs $2 or $3 billion and takes five years to bring online—half of the time to build, the other half testing the machinery.

Last year the company broke ground on a vast new manufacturing facility in the seaport town of Kalundborg, Denmark, on the island of Zealand. This biotech metropolis produces a range of active pharmaceutical ingredients, or APIs, from living cells, including insulin and semaglutide. "Look for Dubai," one Novo employee told me, when describing how to spot the place.

The town is indeed a misty forest of harbor cranes and construction dust. I wanted most of all to see the vats of high-spirited yeast. Michael Hallgren, the senior vice president of API manufacturing, gave me a tour. After we gowned up, he let me hold a small vial with molasses-colored fluid; this was the showpiece cell engineered in the lab. They wouldn't tell me if it contained the molecule for insulin or semaglutide. But the rich appearance of the fluid, the intense specialness—I recognized it. "A sourdough starter?" I asked after a beat.

"Yes," he said. Strolling through the factories, which Hallgren, at nearly 7 feet, seemed to cross in a single bound, what I noticed most was silo-sized mixing bowls. Inside them, something that looked like cake batter bubbled. It was comforting how strongly the facilities smelled like bread, like beer—alive and fizzy. "And, when that starter grows," Hallgren told me, "It's enough to treat 100 million diabetics for one year."

Novo Nordisk employs around 30,000 people in Denmark, with about 5,000 in Kalundborg alone. One bright-eyed young employee, who traveled from the Philippines to Kalundborg to work at the company, has a job validating machinery. ("I have an aunt who has diabetes and uses our product," she told me.) With some $8.5 billion invested in expanding the plant here, hundreds more are expected to come. Not long after I left Denmark, Novo announced it was building yet another facility—in Odense, for $1.2 billion. A Copenhagen politician even said that he anticipates an American brain drain of scientists to Denmark during Trump's second term.

Novo also has plants devoted to making its drugs in Brazil, China, France, Algeria, Iran, and the US. In December, it acquired Catalent, a global development and manufacturing company headquartered in New Jersey, for $11.7 billion.

But Novo's impact on Denmark is absolute. The country is home to fewer than 6 million people, and somehow the company's recent triumphs have driven its GDP up ahead of Egypt, which has a population of 112.7 million. The company pays in taxes what any self-respecting American capitalist would consider confiscatory: $3.6 billion globally in income taxes in 2023, $2.3 billion of that to Denmark. Corporate tax revenue in Kalundborg has shot up 10-fold since 2010. "Big shoutout to overweight Americans for keeping my mortgage low," a Danish economist tweeted in 2023.

++

SINCE WORD OF semaglutide's slimming effects hit the diet-culture rialto, people have been clamoring for it. In 2022, the FDA listed semaglutide drugs as in shortage. People who couldn't wait for the real thing began to turn to specialized pharmacies that cook up Ozempic knock-offs as if it were bathtub gin, sometimes with tragic results.

Meanwhile, just as Novo was making the market, Indiana-based Eli Lilly rolled out its own GLP-1 drugs, Moun-

jaro and Zepbound. With an American company invading Novo's market, some warned that Denmark now faced the so-called "Nokia risk"—the fate that befell Finland in the aughts when it predicated its entire economy on Nokia and its pioneering smartphone, only to get wiped out when Apple introduced the iPhone.

The US government too has absorbed the size of the GLP-1 phenomenon. At the end of 2024, the Biden administration proposed a rule that would have Medicare and Medicaid cover semaglutide for weight loss. "It's a game changer for Americans who can't afford these drugs otherwise," Xavier Becerra, the head of Health and Human Services, said.

Sure, the new administration will likely kibosh this. Robert F. Kennedy Jr., whom Trump has nominated to run health policy, has waffled on Ozempic, once claiming that obesity and even diabetes can be cured with discipline and diet. (Novo Nordisk, he told Fox News, is "counting on selling it to Americans because we are so stupid and so addicted to drugs.") But Americans are unlikely to go without. At Christmas, Elon Musk, looking gaunt, styled himself as "Ozempic Santa."

++

NOTHING MATTERS more to Novo than doing brisk and brisker business in the US. This requires that the company do regular battle with the same demon even the lowliest American confronts: health care runarounds.

On September 29, 2024, Senator Bernie Sanders grilled Lars Jørgensen at a hearing on the price of Ozempic and Wegovy. Bernie found the price of patent-protected semaglutide too damn high, and he seemed to be champing at the bit for a set piece in which he'd slay his very own Big Tobacco CEO. Comparing Ozempic's price in Germany ($59) to its US price (some $600 after rebates), Sanders asked Jørgensen, "From a moral perspective, does it bother you that keeping the price of Ozempic and Wegovy so high could lead to the preventable deaths of tens of thousands of Americans?"

Jørgensen seemed to hedge. Novo now pays a reported $5 million a year to lobbyists to get lawmakers on its side; still he had volunteered to testify. He wanted, he told me, to educate the lawmakers. In a calm and steely voice, he explained how costly it is to make biologics. He didn't give Sanders the fireworks the senator craved. Instead, he directed the committee's attention to pharmacy benefit managers.

PBMs. The worst. They're the despised outfits like CVS Caremark that administer drugs for health plans, negotiate for insurance companies, and, most notably, maintain the lists of drugs covered by insurance.

Though many of us learned about PBMs only after the December assassination of Brian Thompson, the CEO of UnitedHealthcare, which is affiliated with a giant PBM, Jørgensen has called these middlemen the real enemy for a long time. Facing down Sanders, he spelled out one of the most excruciating paradoxes of American health care. PBMs make their money from insurance premiums, but they also get money from drugmakers in the form of rebates. Usually, the more expensive a medication is, the higher its rebate. If

a drug company like Novo drops the price of its drugs *too* low, the PBMs, afraid to miss their cut, often stop covering them altogether.

Take Levemir. As Novo Nordisk rode $18.5 billion high on semaglutide profits, the company announced it would discontinue one of its insulin products. Levemir was set to vanish entirely on December 31, 2024. Patients were stunned. Though Levemir had lost its luster as a first-line treatment, 200,000 people worldwide still used it. The long-acting insulin drug, which metabolizes more quickly than other types of insulin, works especially well for young, pregnant, or highly active type 1 diabetics. Novo aimed to soothe anxiety by pointing out that it offers a range of other products for these patients.

Jørgensen told the committee, "We lowered the list price in the US by 65 percent, just to realize that after we dropped the price of Levemir, the PBMs dropped coverage." Novo discontinued the drug. Of course, the company bears some responsibility for the price of its biologics. But as Senator Tim Kaine pointed out at the hearing, Novo and PBMs are apples and oranges. Novo "makes life-saving treatments," he said, while PBMs essentially exist to skim.

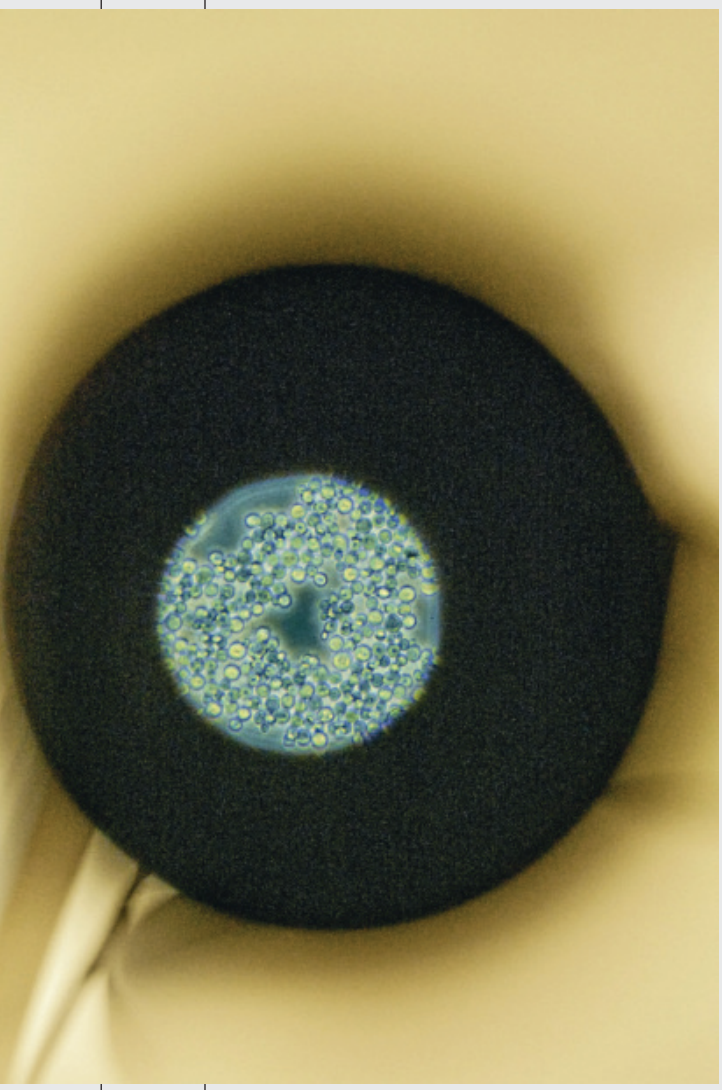
Novo Nordisk, with its Danish earnestness, really seems to believe it could confound the paradigm of capitalist rapacity. While it is publicly owned and traded, its controlling shareholder is still the Novo Nordisk Foundation, cofounded by Hans Christian Hagedorn in the 1920s to use profits from insulin sales to research diabetes. Its mandate has expanded, and it has spent billions to address societal and climate crises. Most recently, the foundation, which is more than twice the size of the Gates Foundation, allocated $1.3 billion of its $167 billion endowment to research and humanitarian grants.

At the hearing, Sanders, the old lefty, stopped his hammering of Jørgensen to praise Danish decency. "As you may know, look, I'm a great respecter of the people of Denmark. I think you have a social system which is very progressive." About Novo specifically, he said, "All we are saying, Mr. Jørgensen, is: Treat the American people the same way you treat people all over the world."

The market, as usual, had a mind of its own. It focus was not on diabetes: Emily Field, a pharma analyst at Barclays, predicted that weight-loss drugs like Wegovy would be "the biggest pharmaceutical class ever" and worth $200 billion in a decade. She added that insulin is of "decreasing financial importance" to Novo Nordisk.

This may have been exciting to investors, but it wasn't what any diabetes patient wanted to hear. Already Novo was under so much pressure to manufacture pens for obesity and type-2 diabetes patients that it had scaled back making insulin pens in South Africa. Without those pens, type 1 diabetics had to resort to cumbersome vials. (A spokesperson at the time said Novo was phasing out certain products to address "capacity constraints.")

"This is completely unacceptable," Helen Bygrave, of Doctors Without Borders, told me. "More lucrative medicines in the same pen devices—GLP-1s like Ozempic and Wegovy—are being sold by Novo at an unprecedented rate in high-income countries. This has clearly diverted manufacturing capacity of pens



<<
Yeast molecules used for insulin production are tested at a Novo research site built in 1991 in Måløv, Denmark.

to garner billions in profits at the cost of people living with diabetes."

Faced with having to ramp up production, feed lobbying and marketing divisions, and meet its earning projections, Novo Nordisk—the foundation-run, conscience-stricken insulin company—seemed, from the outside, to be acting less like a research hospital and more like a corporation that had hit the heel of hockey-stick growth.

++

IT WAS AN unexpectedly sunny day in mid November when I met Jørgensen at Novo headquarters. The CEO, Novo's fifth in 100 years, is a tall, handsome man with a long stride and a soft voice. After a successful knee surgery last year, he's back to kayaking, playing tennis, and riding his bike through the Danish countryside. The employees at Novo had warned me that Jørgensen is introverted, and I expected reticence from him or even evasion. This was wrong.

I asked him straightaway about fat.

"My own personal journey is one of being guilty of stigmatizing people with overweight, obesity," Jørgensen said. "I was coming from an original thought of 'OK, that's probably because you eat too much, and you are not active enough.'"

That meme-weary phrase, *personal journey*—Jørgensen, to my surprise, seemed to mean it. "I went from 'If you just did better, you would have changed your weight and you'll be fine' to understanding that people are different. There's a genetic dimension, there's where you live, your financial position, your socioeconomic position, the culture you live and work in. It's a bit too simple to look at it as a self-inflicted condition."

He went on. "People do not like to be stigmatized." He seemed to grapple with Novo's role in American diet culture. "But even saying it's a disease is, in a way, stigmatizing people. I also understand that body-mass index is not a good way to diagnose people."

What was *this*? His phrasing sounded distantly familiar. But not like a CEO. He sounded almost like a social worker. Diabetics, of course, deserve such high-touch treatment. But perhaps the more annoying patients do too—the ones panicked about food and their body's appearance and desperate to lose 25 pounds.

When I brought up insulin, Jørgensen turned militant. "Insulin is still a very important market for us," he said. "We are committed to the field. It's not something that's growing like type 2 diabetes or obesity, but this is where it all started. We'll never walk away from people with type 1 diabetes. We owe that to them. We don't see it as a burden."

What worries him is that competing companies are developing biosimilars for insulin that are cheaper to produce than the insulin at Novo. *Ah, now we have some garden-variety greed*, I thought.

But it's more complex than that. The scenario Jørgensen sketched out for me presented a migraine of catch-22s. "I worry about the future of a market that's becoming more commoditized," he said. "If other companies make biosimilar insulins, and if countries shift to that product, we'd have to start using our capacity for other drugs."

He continued: "If patients end up relying on them, and those companies don't have the history and know-how to make a low-margin product, and we have moved our capacity elsewhere, there's a shortage of insulin. Who ends up supplying patients, and what kind of commitment do they have?" He paused. Then he expressed another anxiety. I'd expected Jørgensen to strut like a man on top of the world. His troubles were troubling.

"It worries me that policymakers don't understand the market. We at Novo Nordisk don't decide what patients pay. The reality is that, for us, the price of insulin—what we get—has gone down very rapidly. We have support programs for those who cannot afford our products or do not have insurance." Novo's Patient Assistance Program indeed gives away Ozempic and insulin to eligible Americans who earn anywhere up to four times the poverty line.

"The only place where we give medicine away like this is the refugee camps, war zones, and the US," Jørgensen said.

He then returned to his anger at health care companies. In the US, he says, for every dollar of revenue Novo gets from selling insulin, it gives 74 cents to PBMs, wholesalers, and insurance companies. Whenever PBMs and others hike prices to get their cut, Jørgensen told me, policymakers insist *Novo* should lower its costs. "If this persists, the economics around insulin could be no longer viable. That scares the hell out of me."

So it's not just that Jørgensen, as a CEO, fears competition from cheaper drugs. It's that, at any moment, Novo Nordisk could become stretched so thin by market forces that it couldn't serve all of its patients. Say, for instance, other pharma companies get a piece of the insulin market with their cheaper biosimilars, and Novo cedes some of the insulin business. Then the new entrants, lacking a long-standing duty to serve diabetics and fed up with the drug's low margins, stop making it. By then Novo's insulin capacity would be devoted to other medicine. There could be an insulin shortage. Diabetics could die.

I thought of the type 1 diabetics I know and love, with their insulin pumps, pens, glucose monitors, and tracking apps. I thought of their moments of rocky blood sugar—the shakes, sweating, blurred vision, anxiety. Now I was scared. How

could Novo ensure that it's at least cost-effective to supply half of all the insulin for type 1 diabetics around the world?

"Our history, our purpose, our values come into play," Jørgensen said.

"But of course, we also have shareholders ... " He trailed off. It seemed I'd never get an answer. Or maybe there just isn't one.

++

ALMOST AS IF to justify his fears, bad news hit Novo Nordisk at the very end of 2024. On December 4, Lilly released—and widely promoted—a study showing that people lose 20 percent of their body weight with Zepbound and a mere 14 percent with Wegovy. With this, the market contracted to a single data point: percentage of body mass shed. Forget metabolic disease. Like glossy magazines at the checkout counter, stock analysts were now fixated on dress sizes and beach bodies.

Then, on December 20, Zepbound was approved to treat sleep apnea, the first GLP-1 to win this approval. The same week, Novo unveiled a study that—in an upside-down way—was deemed to be a grave disappointment. Patients who had taken Novo's new CagriSema, a shot that combines semaglutide with an analog of another hormone, had slimmed down by 22.7 percent. That sounds like a boatload. And it was more that the Zepbounders lost. But Novo had projected the patients would shrink a full quarter in size—25 percent, not 22.7. Investors wailed, and the company's share price shed a whopping 20 percent of *its* weight—that is, value.

In Denmark, on my last days there, I felt very serious. The cold Nordic air seemed clearer than the air at home in New York. As the sun set, I walked along the Copenhagen waterfront, looking out at the Øresund Strait. From the piers, beside a grove of ship masts, two elderly couples were skinny-dipping in cold seawater. They splashed and yelped and shivered and ran-hopped to seaside saunas. Their bodies were uninhibited and beautiful.

When I told some American friends I had been at Novo Nordisk, several railed against semaglutide as a tool of patriarchal control by an evil pharma empire. I usually like this kind of fire, but Novo didn't have evil-empire hallmarks. All those people who worked there, the researchers, the quality control staff, even executives, sincerely seemed to be trying, within the tight constraints of markets, to prevent disease, treat disease, save lives. That much seems fixed. It was the company's prime directive.

To understand Jørgensen's situation, I tried my hand at squaring Novo's sacred duty with its fiduciary responsibilities. All the investment and research and care and feeding of yeast. All the jobs. The taxes. The madness of rampant food noise and the health care non-system in the US. And government pricing—at home and abroad. The lobbying and marketing. No luck.

For a biotech company overseen by a nonprofit to hit on the magic ingredient and to achieve, however briefly, world dominion and otherworldly profits, it was almost Faustian.

Monika Nøhr Løvgreen, a research scientist at Novo, describes some of the tricky molecules she works with as "prima donnas."

I couldn't shake the idea that Novo was at increasingly steep odds with itself, like a body devouring its own pancreas. And now Wall Street was "disappointed" that Novo's latest drug didn't induce weight loss more precipitous than 22 percent. Perhaps investors won't wholeheartedly green-light Novo again until they see returns of 100 percent weight loss, the full deletion of human bodies.

VIRGINIA HEFFERNAN *is a longtime contributor to* WIRED.

FAILING TO MEET DEMAND, UNABLE TO MAKE ENOUGH INSULIN. DIABETICS COULD DIE.

The Rich Origins of Bill Gates

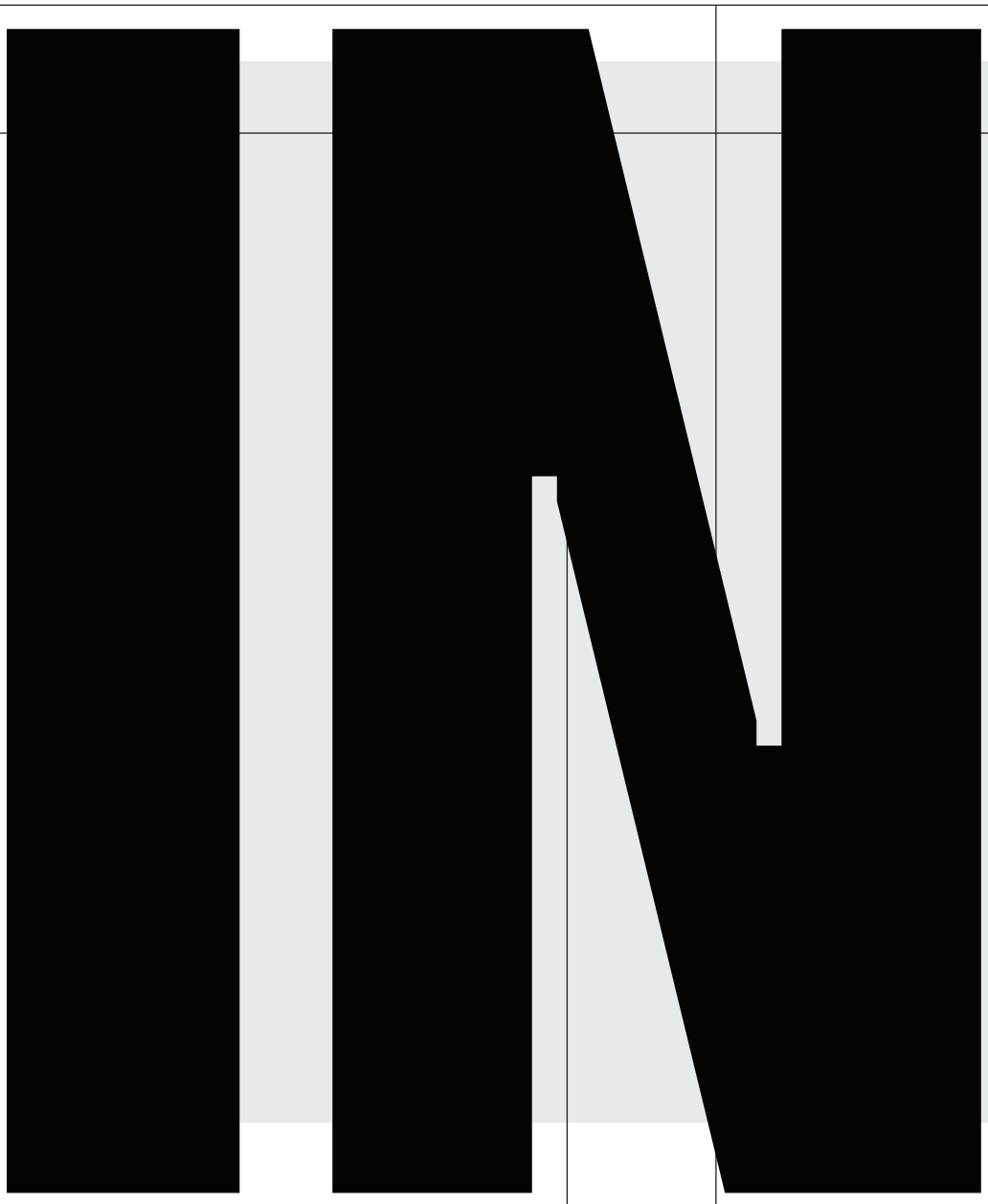
The Big Interview

He started Microsoft at age 19 and became a billionaire at 31.

by
Steven Levy

Photographs by
Sinna Nasseri

Now 69, he's looking back: at getting tossed in the slammer, going undiagnosed (maybe!) on the autism spectrum, and tripping on LSD.



IN HIS NEW MEMOIR, Bill Gates doesn't mention any study of William Wordsworth's writings. But when I read *Source Code: My Beginnings,* I thought of the English poet's famous line from 1802: "The child is father of the man." Nearly the entire volume is devoted to Gates' early years, with Microsoft's origin story entering the narrative in the final chapters. (A second volume will discuss his company, and a third will focus on his work with the Gates Foundation.)

In more than 40 years of interactions with Gates, I have found him resistant to self-reflection. He'd often mock my attempts to engage him in a deep biographical mode by making flip comments or dodging the question. But in this book—his fifth—released this February, there are about 300 pages of Bill Gates' personal journey, told in a somewhat unsparing first person.

As he paints it, Gates' Seattle childhood hit all the notes of a '50s sitcom, with loving, devoted parents and the trappings of the American Dream. But the family dynamic was fraught, often because of Gates' personality quirks. His own father once told me that Gates' mom found their son's behavior "traumatic"—he refused to submit to his parents' wishes that he do his homework, listen to simple requests, or even speak to them. With his family, his teachers, and his fellow students, Gates rejected the social contract. He cracked jokes or responded with sarcasm and his favorite phrase, "That's the stupidest thing I ever heard!" (Those words would later be as familiar to his employees at Microsoft as they were in the hallways of Seattle's Lakeside School.)

At Lakeside, Gates learned that actually studying for class could pay dividends, and that acting in a school play was a great way to get to know popular girls (though one turned him down for a prom date).

The interview has been edited for coherence and length.

Most importantly, he discovered that a computer terminal could open up a world to him—and ultimately, with his software, to hundreds of millions of others.

Gates' description of how he and his friend Paul Allen cofounded Microsoft is a more familiar tale. It was the subject of my very first interview with Gates in April 1983, and in my book *Hackers* I told the story (as did others) of how, when Gates was 19, the pair created the first version of the BASIC computer language that ran on a microcomputer. But reading Gates' side of the early Microsoft saga is illuminating. He explains why after commandeering a 60 percent stake in the company, he later browbeat Allen into accepting the butt end of a 64-36 split. Gates says he now feels badly about how he handled it, but that the arrangement reflected who was working harder and making more decisions. (In his own autobiography, *Idea Man,* Allen would write that the incident "exposed the differences between the son of a librarian and the son of a lawyer.")

Gates and I met at the Washington, DC, office of Breakthrough Energy, an organization he founded in 2015 to help fund climate tech. The former teenage hellion—who once joked with a friend how crazy it would be to accumulate a $15 million fortune—is now a 69-year-old world-famous centibillionaire and a divorced granddad with his own complex family dynamic. He is respected by the global health establishment and literally demonized by anti-vaxxers and tinfoil paranoids. He has been interviewed thousands of times and sits stone-faced as he mics up for our session. But as he reimmerses himself in the past, he soon is rocking gently—and cracking jokes.

I know you've been thinking of an autobiography for decades. But I didn't expect you to write a book about your childhood.
It's a project I've been working on for some time. But it was only about 18 months ago that I decided to do a book on this first phase of my life—the 25 years up to the start of Microsoft—where my parents, my upbringing, and the luck I was exposed to were the whole story. Once that idea came up, I got quite enthused. It was really fun to try and explain how amazing my father was, my mother, my sisters. And how I found myself more enmeshed in programming than almost *anyone* by the time I'm about 20 years old.

This is very much a bildungsroman, your coming-of-age story. You hold a mirror to yourself. Sometimes the mirror doesn't portray such a flattering image.
It's not the Immaculate Conception. I had my ups and downs. There was the time I brought friends to the Harvard lab and used a computer, and they were confused about what I was doing. [He was later admonished for improper use of the lab.] Microsoft's first customer was MITS, and we ended up in a dispute with them. It's hopefully a very human story.

It is a human story. I remember doing a profile of you in 1999, and your father told me that your mother was traumatized by your behavior. You wouldn't talk for days on end. As you say in the book, the things that really interested you were reading and math and being inside your own head. In some ways you weren't kind to your parents, and you express remorse for this.
I give my parents a lot of credit for how they shaped me. My dad was much more setting an example, always being serious about his work. With my mom, it was far more intense. I was often falling short. "Oh, you didn't get up here as soon as I wanted, or your table manners weren't as good as I wanted." She was always pushing me to do better. Eventually she was proud of what I achieved, but that was a complex relationship.

They were at their wits' end with you, and took you to a therapist. At the end of the book you said that if you had grown up in this era, you probably would have been diagnosed on the autism spectrum. What led you to that conclusion?
Back then, the idea that kids were very different and needed some kind of intervention wasn't commonplace at all. I was clearly somewhat hyperactive. I could concentrate a great deal. This guy, Dr. Cressey, really got me thinking about what I was trying to achieve in this conflict with my parents. Did I really have some thought in mind, or was I just trying to make trouble? I think the fact I did get to see that therapist was good. Who knows what it would have been like if I'd been diagnosed? Kids now are much more looked over. I was able to go off to the computer center or spend all that time alone, even going out on hikes.

I couldn't believe how you and your preteen friends went on epic, dangerous, multiday hikes.
Now you'd have a GPS tracker.

Very late in the book you acknowledge how much privilege is part of your story. You say that you were advantaged as a white male, and your family was well off. But in a sense your life is charmed. Everyone is watching out for you. At several points your father swoops in to give you legal help. Teachers went out of their way to take an interest in you. People had your back at every turn.
I was so lucky in those things. I had at least five or six teachers who saw a spark in me and really engaged with me. My parents were well off, but compared to the kids at this private school I'd say we were below average. They had bigger houses and they had wealth. [This wasn't apparent to Paul Allen, who wrote in his book, "Bill came from a family that was prominent even by Lakeside standards … I remember the first time I went to Bill's big house a block or so above Lake Washington, feeling a little awed."] I actually had a little chip on my shoulder—"Hey, you guys, your parents gave you a car and you didn't have to work in the summer." But you could hardly design a better childhood, you know—including a time-sharing computer terminal showing up at the school when I'm 13 years old.

You recount how you acted like the class clown and often responded to people by being, as you diplomatically say, a "smart aleck."
Look, there's a certain clever-boy shortcut use of sarcasm that allows you to communicate efficiently. That whole kind of sparring can be funny. At Harvard, that was my go-to approach, my whole way of engaging with people—procrastination, and being super clever and sarcastic while tearing somebody's argument apart. The underlying skill is actually worthwhile, but I tended to break those habits later, knowing when not to deploy it. That kind of dialog doesn't work when you're managing people.

Well, I'm thinking about the deposition you gave as a billionaire CEO before the trial for antitrust—you behaved just like a smart aleck kid!
You think I was a smart aleck? That lawyer, now *that's* a smart aleck!

Malcolm Gladwell in his book *Outliers* says that it's possible to explain why some people are special. They practice at their special skill for 10,000 hours and are alive at the perfect time for their expertise to matter. You certainly spent more than 10,000 hours programming, and the time was right. But that's true of a lot of people. And there is only one Bill Gates. I can't crack the code for what makes a person extraordinary. Have you thought about that?
It's not just the circumstances, though that's gigantic. Yes, there's still a few million kids who are in the same loop as I am. But through my father I saw the common sense of business. In my early engagement with Digital Equipment Corporation, which was this vaunted company, people embraced me and gave me reinforcement. And there's something about my desire to succeed using my skill set. My friend Kent Evans helped really cement that.

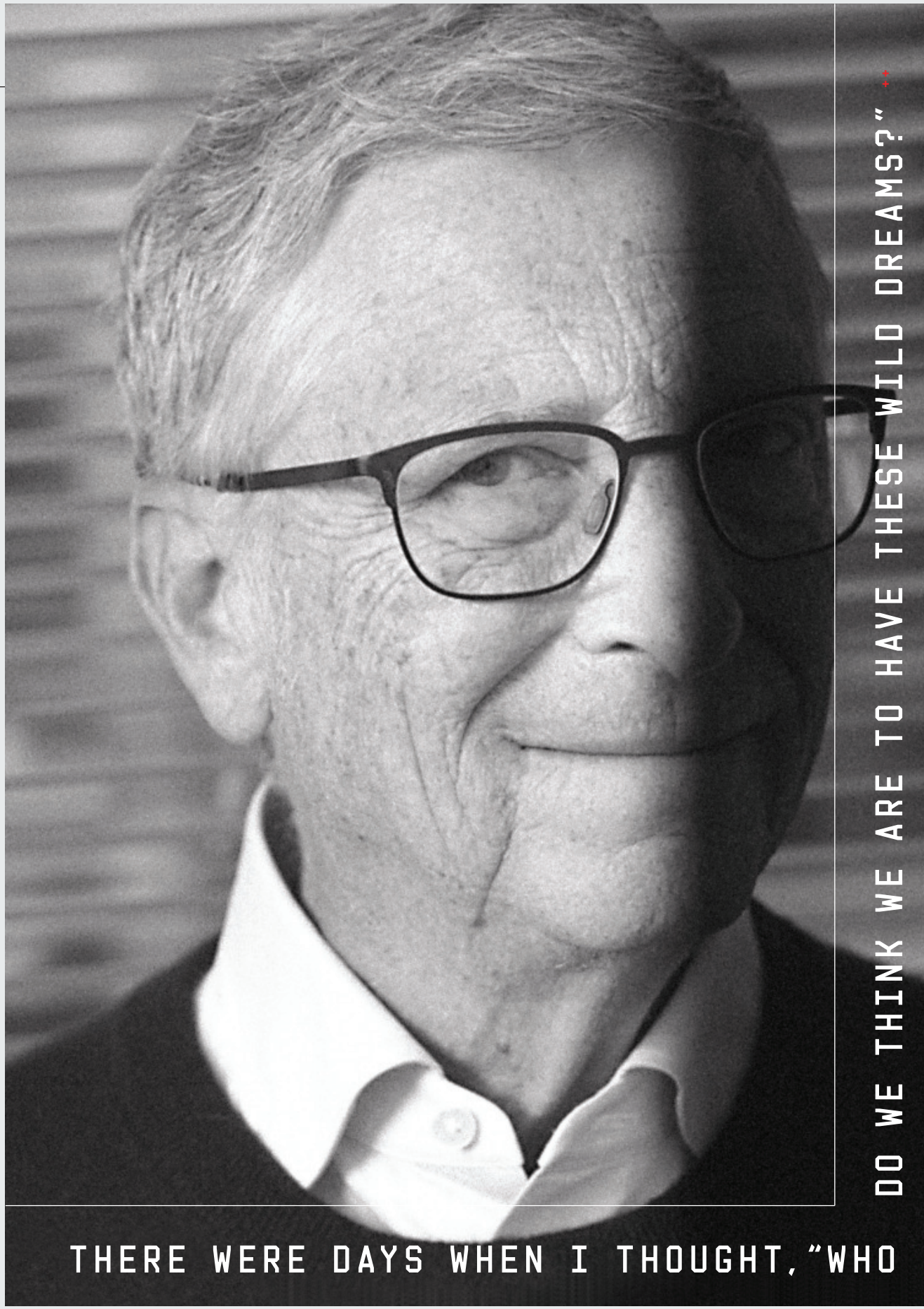
He was your best friend, and more focused on his ambition than you were, reading business magazines as a teenager. His accidental death at age 17 haunts this book, and your life.
Kent helped shape me as a forward-looking person. And then Paul was reading about chip stuff, and he showed it to me. He was two years ahead of me but he sought me out.

Paul also gave you LSD. Steve Jobs once said that LSD was a formative experience and opened his mind in a way that helped him with creativity and design. I don't get the impression that taking acid was life-changing for you.
I think the batch that Steve got must have really been good for product design and marketing. My God, just think if I'd had that batch! Yeah, I did some crazy things when I was young. Paul deserves some credit for that. By the time we got serious about work, we weren't doing that anymore.

You also briefly write about the famous time you got busted for speeding. Were you freaked out by spending a night in jail?
No, it was just kind of a funny thing. They thought it was strange that somebody so young had a nice car—what was the story with this kid? Was I a drug dealer or something?

You bought yourself a Porsche in your early twenties.
I clearly didn't fit their normal pattern. We kept enough cash around that Paul was able to come down and bail me out.

Speaking of cash, on the recent Netflix series you host, you did an episode about inequality. You didn't condemn the

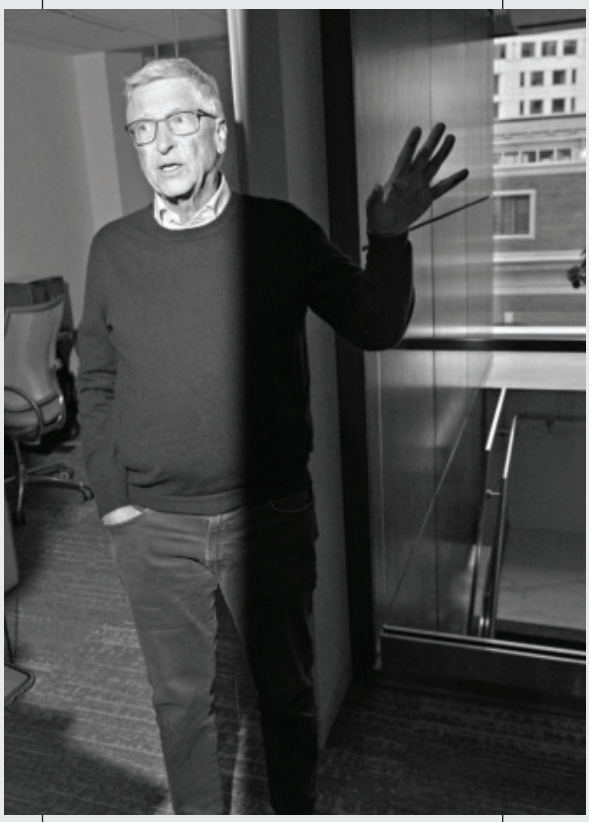

THERE WERE DAYS WHEN I THOUGHT,"WHO
DO WE THINK WE ARE TO HAVE THESE WILD DREAMS?"

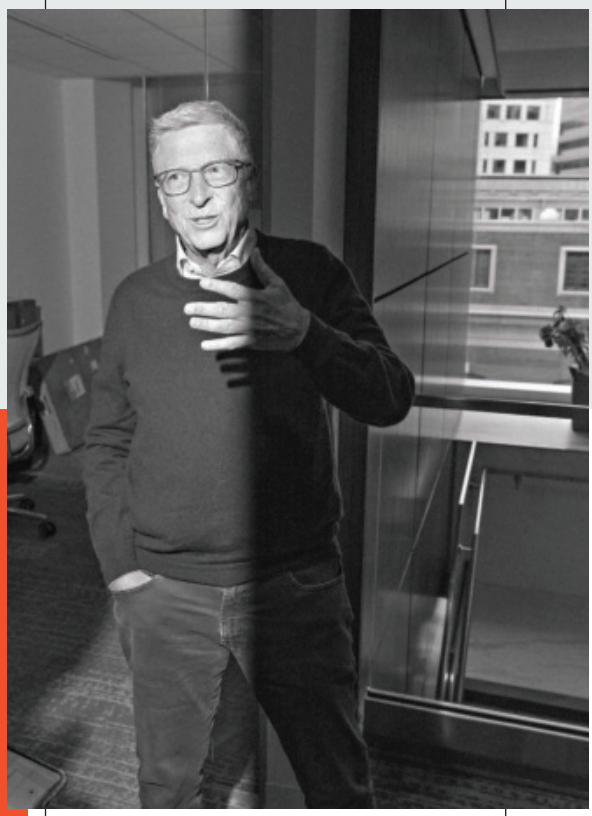
idea of billionaires but advocated for more equality. How would that work?
The world economy has created some hyper-rich people. Like me. And maybe 50 or 60 others. Elon Musk is at the head of that list, but with Jeff Bezos, Mark Zuckerberg, Steve Ballmer, Warren Buffett, Michael Bloomberg, there's a lot of people with a stunning level of wealth. I think that's OK. I would have a much more progressive tax system, so I would have about a third as much money as I have. It would still be a gigantic fortune.

The New York Times reported that Nvidia CEO Jensen Huang is on track to avoid $8 billion in estate taxes. When you read that, did you think, "I should consult his tax lawyer"? Or say that this is not a good thing?
I'm quite certain I've paid more taxes than anyone alive—over $12 billion. There are techniques I *could* have used, like to borrow against my Microsoft shares and not sell them. But if people are getting away with paying less in taxes in a legal way, blaming them is a little strange. We ought to change the tax system.

They are culpable because they use political pressure to preserve their loopholes and cut funding for the IRS.
The votes of these billionaires shouldn't influence our tax system. Also, several of the 50 hyper-rich are for more progressive taxation. I've been surprised that even the Democratic Party hasn't gone very far to make tax stuff more progressive. I'm a huge defender of the estate tax, I think it's a fantastic thing. I would make it even tougher to avoid it.

Let's talk about artificial intelligence. You've been working with it for years, but you were slow to embrace the recent transformational breakthrough of generative AI. It wasn't until OpenAI did a demo of GPT-4 at your home and aced an AP Biology test that you became bullish on it. What was the reason for your initial skepticism?
The idea of AI is pervasive throughout my whole history with computers. Bizarrely, when I left Harvard to start Microsoft, one of the things I thought I might regret was that the progress in AI in academia might move quickly while I was doing BASIC interpreters. That turned out to be so wrong. I expected that when we could encode knowledge in a rich way, where it could read a biology textbook and pass the AP exam, that we would explicitly understand how we're encoding that knowledge. Instead, we discovered a weird statistical algorithm that we don't understand. Why does GPT work? We don't have a clue. But when OpenAI showed me GPT-4, it stunned me that they had crossed a very important threshold. We still have reliability problems, but we have a path now where I think those will all get solved.





Sam Altman says we will have AGI in the next few years. Do you agree?
Absolutely.

What will that mean for us?
Anybody who analogizes this to electricity, tractors, microcomputers, they don't get it. This is not a productivity aid for humans. This is something that exceeds human capability. It is not bounded in any way, and it is happening very, very quickly. Just looking back on previous tech revolutions and saying, "OK, that all worked out," is no guide for this one.

Do we need to regulate it?
Regulation will call for certain liability, for quality benchmarks. But the main thing people should say is, should we slow it down? It's very hard to think how you would do that. Whenever somebody in the US says, OK, let's regulate it, people say, "Well, what about other countries like China?" The key fact is, we don't have a mechanism to slow it down.

We're also developing weapons with it—there's a literal arms race for lethal weapons controlled by AI. Do you think that's a good idea?
Take what Elon essentially said about the F-35 fighter jet—having a human in it is value subtracted. He's right. So if you use the logic of, "OK, I want to make the best airplane weapon," AI is the state of the art.

What's your relationship with the new administration? In an earlier interview, you told me that Trump urged you and [Anthony] Fauci to meet with RFK Jr.
We did meet with him, and we discussed vaccine safety. It was four people—Robert Kennedy, [former National Institutes of Health director] Francis Collins, Tony Fauci, and myself—and we spent two and a half hours.

Are you excited that he has been named to head the Department of Health and Human Services?
Does he end up taking the job or not? There are people excited that he is willing to shake things up. If you shook it up the right way, maybe it could be better. But I think the National Institutes of Health works very well the way it is. So my counsel, if they are at all interested, is to not be too radical in changes to the NIH. But they're in charge. At the very least, it's going to be an interesting period.

Aren't you terrified that an anti-vaxxer is going to be in charge of vaccines?
It's hard to know. Many radical things get said, and very few radical things get done. In the world of health you have to have an outcome. Are you helping to make people healthy or not? The Foundation's unique point of view is that we want to help the health of people all over the world, including in poor countries. The thing that I'm most worried about is, will the health needs of the poorest, particularly in Africa, continue to be a priority? The desire to reduce the deficit makes us have to stick up for those things even though the stuff I'm trying to stick up for is only like half a percent of the budget.

Elon might think that's a waste of money.
I am worried about the relationship between the United States and the World Health Organization, since various people and politicians had complaints about the WHO during the pandemic. That should all be talked through. But I hope the US doesn't defund WHO, because they play a very important role in coordinating things when there is a health emergency and preventing a pandemic.

Are you going to make nice with the Trump people?
They're the government of the United States. So I would say yes.

Let's finish with the way you end your book. You write that sometimes you wish you were still that 13-year-old kid living inside your own head and driven by curiosity. With all your success, you really want to roll back the tape?
I'm not saying I want to go back and change something. I've been so lucky. But it was amazing to live through all that. I do miss that wonderful feeling where the whole thing was in doubt. There were days when I thought, "Oh, we are so messed up, and other people are ahead of us." And, "Who do we think we are to have these wild dreams?" But step by step, we built this incredible thing.

Do people really change?
No. I think you moderate, you become wiser, and you grow. But I'm still 95 percent that same person. W

STEVEN LEVY *is* WIRED*'s editor at large. He wrote about Microsoft's transformation into an AI powerhouse in issue 33.01/33.02.*

THE SCHOOL SHOOTERS WERE FAKE.
THE TERROR WAS REAL.
HOW ONE TEEN WENT ON A NATIONWIDE RAMPAGE OF DECEPTION,
AND ONE PRIVATE DETECTIVE TRACKED HIM DOWN.

THE HUNT FOR THE WORST SCHOOL SWATTER IN US HISTORY

by DHRUV MEHROTRA
and ANDY GREENBERG

photographs by IAN ALLEN

SARAH JONES WAS 11 HOURS AND 49 MINUTES into her 12-hour shift as an emergency dispatcher for the county sheriff in Spokane, Washington, when she received what she would later describe as the worst phone call of her life.

It was a Wednesday morning in May 2023, around 10 o'clock, when the call—from someone who identified himself only as "Wayne"—came in via a publicly listed regional emergency line. "I'm going to walk into Central Valley High School in Veradale with my AK-47," Wayne told the operator who first picked up. The voice was unnaturally deep, slow, so claustrophobically close to the microphone that its breath seemed to fill the line. "I'm going to kill everyone I see."

That operator transferred him to Jones (WIRED has changed her name at her request), a 42-year-old, red-headed mother of three. Jones' office at the Spokane Regional Emergency Center was chronically understaffed, so she'd been working overtime through that night and morning, drinking Dunkin' Donuts–branded coffee from the office's Keurig machine amid the usual marathon of domestic violence and reckless driving reports. Jones had spent years taking 911 calls; only that week she'd been promoted to "law dispatch," a position that included dealing with callers carrying out crimes in progress—"hot calls," as dispatchers referred to them. This would be her first.

When Jones read the message from the operator that accompanied Wayne's transfer, she realized with a rush of adrenaline that she was speaking to an active school shooter, and that she had seconds to persuade this stranger not to carry out his plan.

"Hi. Wayne? What's going on?" Jones asked calmly, taming her racing heartbeat.

"It's too complicated," the voice drawled, so grotesque that Jones initially thought the sound might be recorded from a horror movie. "All you need to know is that I want cops here as soon as possible. Because after I kill everyone I see, I want to kill cops too."

"Wayne," Jones answered, drawing out the name this time and affecting her most sympathetic and motherly tone. "Are you in front of the school right now?"

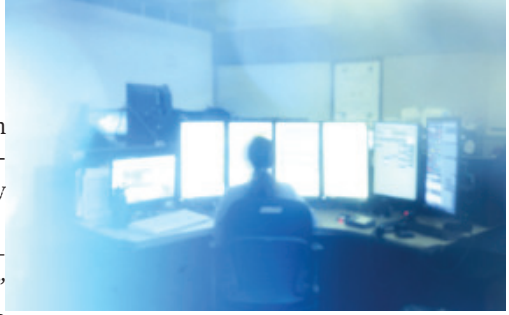
"Yes, I'm walking in now."

"OK, can you stop, please?" Jones said, her words accelerating as desperation crept into her voice.

The only answer was a series of rapid staccato blasts: automatic gunfire.

"Shots heard, Andrea! Shots heard!" Jones called out to her supervisor, her voice now cracking with emotion.

A few feet away, Jones' supervisor, Andrea Lombard (also not her real name), watched Jones put down the phone "as if it were on fire," as she would later describe it. The caller had hung up; the entire conversation had lasted 45 seconds. Lombard had already sent out an emergency alert to all police in the region—a high-pitched tone followed by



The Spokane Regional Emergency Center.

Bottom left: Dispatcher Sarah Jones at work.

her warning that a school shooting was in progress. More than 50 units, sirens blazing, were on their way to Central Valley High School.

As Jones tried to call the shooter back—"Come on, come on, come on, answer," she pleaded—Lombard looked at a map and saw that, just a block and a half from the high school, there was a children's day care. She called and reached the day care's assistant director, who was outside in the yard with a group of 1-year-olds.

In a quick, controlled voice, Lombard explained that there had been shots fired at the nearby high school and they needed to lock down. The assistant director let out a kind of involuntary wail, then shouted "Get inside!" as she moved to scoop up as many babies as she could carry and run with them into the building.

Lombard quickly hung up and tuned in to police radio communications, listening as officers armed with rifles began to enter Central Valley High School. They moved through its hallways, guns drawn, as teachers barricaded doorways and students hid inside locked, dark classrooms, crouching in silence.

This was not Lombard's first school shooting. In 2017, she had listened to the same radio chatter as Spokane law enforcement entered a different local high school after a 15-year-old boy shot four classmates. The words of the officer who first came upon one young victim, who would die of his wounds that day, still echoed in Lombard's memory, his voice breaking as he radioed the news to the rest of the officers.

Now she sat in the dispatch office next to Jones, listening to the radio, waiting with dread to hear that sound again.

Instead, as dozens of officers moved through the school that May morning, they found—nothing. The school resources officer who had been posted near the school's entrance radioed to the police line that he'd seen no sign of a shooter entering. Nor had he heard the automatic gunfire that Jones described.

Slowly, Lombard's dread gave way to anger. Could the call have been a hoax? As she and hundreds of students and teachers sat in silence, still fearing the worst, two questions entered her mind that she would still be asking herself more than a year later.

Who would do something like this? And why?

THE CHAOS, the fear, the dread and immense disruption triggered by that one haunting voice on the phone wasn't targeted at Spokane alone. The call was one of dozens that a person who went by the online handle Torswats would make to law enforcement, targeting schools across Washington state over a little more than 24 hours.

In some calls, the person told dispatchers he wanted to kill students for Satan. In others, he said it was because he was new to town and people treated him "like shit." In others still, like the one to Spokane, he seemed to have become bored enough with the game that he didn't bother to make up a reason. Armed with little more than his monstrous voice, an internet-based calling application routed through an anonymous proxy server, and a recording of gunfire taken from the video game *Counter-Strike: Global Offensive*, Torswats terrorized half the state, paralyzing schools, weaponizing civilians' own police forces against them, temporarily shutting down entire communities, again and again and again.

Torswats crossed off counties on a screenshotted map of Washington as he targeted one school after another, then posted the screenshots in a private Telegram channel between calls. He boasted that he aimed to hit at least one school in every county in the state and tallied the tens of millions of dollars in disruption he hoped to inflict. "It was funny as allf uck. SHOTS HEARD," he joked at one point, seeming to mock Jones specifically.

"2/3rds done with washington," he wrote, then bragged about making a bomb threat against the Pentagon. "There's nothing I can't do."

In fact, over the previous year, Torswats had been tormenting schools all over the country. He was the most active player in a loosely linked network of young trolls who made hundreds of "swatting" calls—hoaxes designed to send heavily armed police to a victim's door—and bomb threats that triggered mass evacuations.

At a Michigan high school, a police officer had responded to one swatter's call by ramming his cruiser through the school's locked front doors. In Pittsburgh, Pennsylvania, an officer fired a round from his gun when he was sent into a university following one hoax call. In other swattings, students hid in janitors' closets, so scared to move that they urinated in mop buckets before armed officers pulled them out, hands above their heads, to frisk them for weapons. One family member in Texas reportedly lacerated his arm trying to break into a locked-down school to rescue a child.

In the midst of that months-long reign of terror, Torswats had distinguished himself as perhaps the most prolific American school swatter in history. And throughout all of it, federal law enforcement was well aware of the chaos Torswats was inflicting. For months, the FBI had possessed everything it needed to unmask him. In fact, the agency already knew Torswats' real name and address. But it had still done nothing to stop him—a fact that was particularly appalling to the man who had practically handed Torswats' identity to the FBI: a lone private investigator living outside Seattle named Brad Dennis.

AS TORSWATS carried out his swatting campaign across Washington in May 2023, Dennis watched it all unfold on his computer screen. He saw the maps Torswats shared on Telegram, where he crossed out counties in Dennis' state as he targeted schools in each one. A pale, bearish, baby-faced

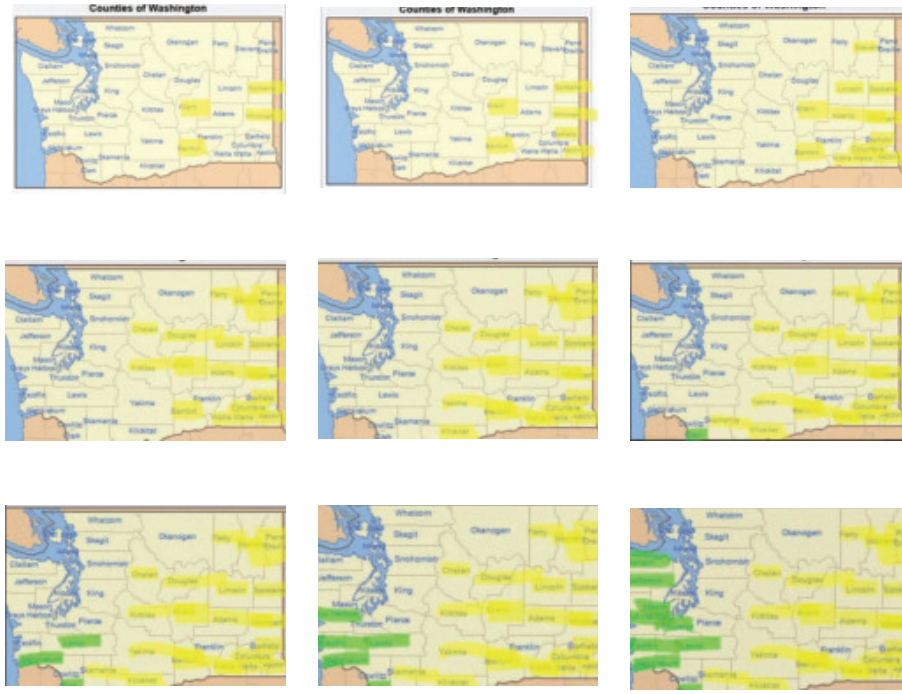
36-year-old, Dennis was chilled to realize that he was personally familiar with some of these schools; he'd been to them for track meets when he was a teenager.

For months leading up to that May swatting offensive, Dennis had been tracing Torswats' online footprints, tracking down his various social media accounts, meticulously tying those clues to real-world identifying information and sharing the results with law enforcement. Even after he'd given the FBI everything he thought the agency could possibly need to arrest Torswats, Dennis couldn't stop monitoring the swatter's every move. Working from a corner of his one-bedroom apartment, lit only by two dim red and blue lamps on either side of his couch, he had become almost a mirror image of his target: as fixated on taking the swatter down as Torswats was on his malevolent hobby. And now he couldn't help but feel like it was the swatter who was closing in on him.

By May 2023, Torswats had come to occupy nearly all of Dennis' waking hours. As spring turned to summer, those hours would become nocturnal, as they did every year, when Dennis sought refuge from the anxiety of heat, traffic, and other people. For days at a time, he was so isolated from other human beings that his only real-world companions were the neighborhood squirrels—Jackie, Jesse, Alvin, Doug—that he'd trained to visit his apartment by feeding them peanuts. When he wasn't at his desk, which he sometimes cordoned off from the rest of his apartment by a blackout curtain, Dennis would speed down highways along the Puget Sound in his Honda Civic late at night to clear his mind.

Visions of Torswats haunted him at every turn. "It was very difficult to live with every day: that he's out there, and I physically can't do anything about it," Dennis says. "I knew how many people he was terrorizing all over the country."

Yet when Dennis imagined Torswats, whose face he'd never seen, he actually pictured someone else: a hulking young hacker with short, dark hair—an altogether different delinquent who, 15 years earlier, had sent a caravan of police cars full of heavily armed officers to Dennis' own childhood home, altering the course of his life.



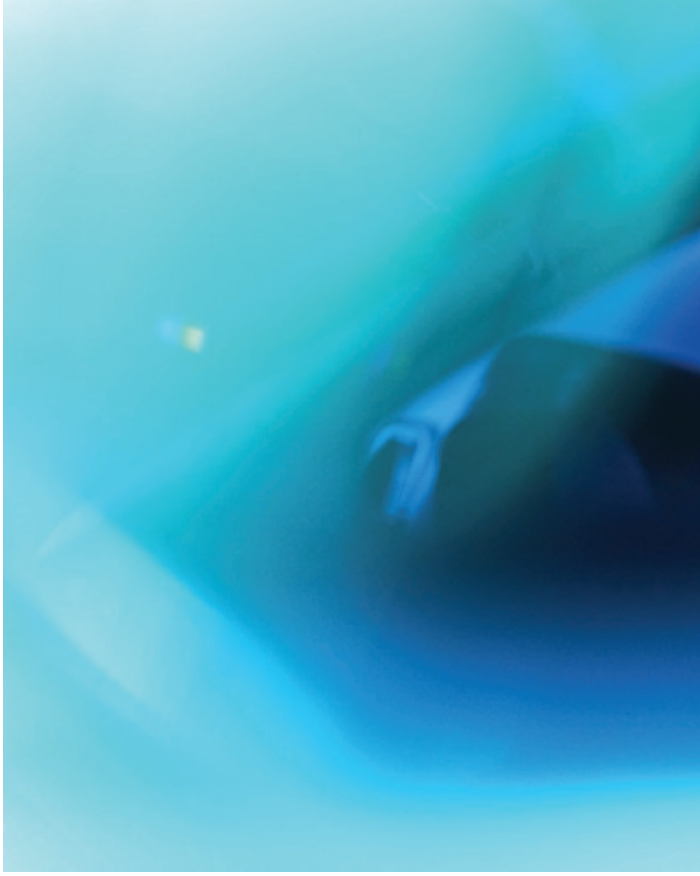
The screenshots of Washington state that Torswats posted to Telegram, crossing off counties as he hit each one in a two-day school-swatting spree.

WHEN DENNIS was growing up in the Seattle suburbs in the early 1990s, his mother would sometimes bring him to her office, where she worked as a secretary for the county's emergency services. He liked wandering into the cavernous room where the dispatchers worked, examining the computer systems and radio equipment, sensing both their technical complexity and the life-and-death work that depended on it.

But rather than a dispatcher, Dennis was destined to be a hacker. When he was just 4 years old, his mother installed an alarm on the fridge door to keep him from raiding it for Diet Cokes. Dennis learned that he could remove the alarm's batteries, then quietly replace them after he'd taken the soda. When he was 6, his mother bought a Hewlett-Packard PC, and Dennis spent the next years compulsively pressing every button and clicking every option in every software menu for hours. By the time he was a preteen, his mother started taking the keyboard away at night, hiding it in her bedroom to limit his computer time. Dennis would silently army-crawl into the dark room to retrieve it without waking her up.

Technology became an escape from the poverty of Dennis' childhood: His father came in and out of his life through a "revolving door," he remembers. And at times, he says, his mother seemed unable to provide him emotional support, even as she worried herself sick about his well-being. Growing up in a crime-ridden and drug-plagued suburb of Seattle, several of Dennis' childhood friends would later struggle with meth and opiates or be killed in narcotics-related murders. "A lot of the people I grew up with ended up hooked on drugs," Dennis says. "I got hooked on computers."

By the time he was 11 years old, Dennis was texting with professional cybercriminals on the early chat protocol IRC. When he was 12, he says, he gained access to 400,000 credit cards insecurely stored by a software company. His brother, Bryan, remembers electronics and toys showing up at their house, stuff they could never afford. At one point, Dennis told Bryan, grinning, that he had hacked into the White House communications network and obtained a list of phone numbers. Bryan rolled his eyes. Dennis showed him a phone number and Bryan dialed it. Someone picked up with a brisk "Situation Room."



In 10th grade, Dennis learned about a vulnerability in Windows that would have allowed him to gain administrator access on school computers and change students' grades. Showing off the trick at school, a teacher saw over Dennis' shoulder that he was browsing a forbidden part of the school network. He was fed up with school anyway, and dropped out before he could face any consequences.

Around 2007, when he was 19, Dennis met a hacker named Dshocker on IRC, and the two developed a system for cleverly exploiting stolen and leaked credit card numbers: They'd order something via UPS and send it to the cardholder's own address to skirt fraud detection. Then a contact Dshocker had at UPS would use his access to the company's system to reroute the package to one of their own addresses.

It was a lucrative connection. But Dennis was dismayed to discover that Dshocker was also interested in more malevolent forms of hacking. He turned out to be an early practitioner of swatting, sending armed police to anyone who wronged him and even arbitrary targets. The fact that Dshocker knew Dennis' own home address because of their shipping scheme made him deeply uneasy.

Over his years dabbling in blackhat hacking, Dennis says he'd received occasional, unfriendly visits from law enforcement, including at least one from the Secret Service. This time, he says, he approached the FBI with information about Dshocker and helped the agency identify Dshocker's online accounts. The hacker had made the mistake of logging in to one without masking his home IP address. Dshocker turned out to be Nathan Hanshaw, a 17-year-old in Massachusetts. Hanshaw was charged, pleaded guilty, and was sentenced to 11 months in juvenile detention—but not before sending a team of police with loaded weapons into Dennis' home.

On that day in 2008, Dennis was in his bedroom when the cops rapped on the door of his family's double-wide trailer and pulled his confused mother out at gunpoint. Dennis was so immersed in his computer, with his headphones on, that he hadn't even heard the sirens of the Snohomish County Sheriff's cruisers tearing down the block of his quiet neighborhood. Only the sound of a man yelling his name from behind his bedroom door yanked Dennis into reality: He opened the door to see a sheriff's deputy brandishing an AR-15.

Dennis was cuffed and pushed onto the couch in the living room. He tried to explain to the crowd of heavily armed and armored police officers that he had been swatted. That he knew exactly who had placed the false 911 call. That he was, in fact, working with FBI agents investigating a serial swatter named Dshocker. That whatever crime in progress Dshocker had described was a lie. But sitting in his gym shorts with his hands cuffed behind his back, it all seemed futile: Dennis heard the police describe him to each other using the police code for a mentally ill individual. They threatened to arrest him if he didn't stop talking.

The standoff ended only when Dennis asked an officer to go into his room and find his wallet. Inside it was the business card of an FBI agent with whom he'd been sharing information about Dshocker. The cops called the number, talked to Dennis' contact, uncuffed him, and drove away, leaving Dennis and his shell-shocked mother in silence.

Dennis' mother would blame him for that horrific disruption in their lives, his brother would later remember. She saw it as another indirect result of his all-consuming computer obsession.

For Dennis, the swatting incident would leave him "scarred," anxious, suffering from panic attacks for years. He still believes Hanshaw never knew he was helping the FBI to track him down. So why would Dshocker swat his own hacking partner, traumatizing him and his mother? Dennis would eventually arrive at an explanation that he now sees as the common denominator among serial swatters: "He did it because he could."

AFTER THAT

swatting, Dennis knew he needed to quit the cybercriminal world. His hacking schemes, too, were growing in scale; he felt that if he didn't walk away, he'd eventually end up in prison. But it would take Dennis years longer to extricate himself, a process that involved leaving behind essentially all of his friends.

After a series of odd jobs through his twenties, from network administrator to warehouse muscle, he eventually found work as a skip tracer, tracking down missing people, and then as a repo man. Dennis found that these private investigator gigs suited his skills as a hacker—persistently hunting through datasets for the tiniest clue about someone, pivoting from connection to connection until he could locate them and lure them into the open.

His go-to trick for repossessing cars was the classic honeypot: Create a social media profile posing as an attractive young woman, catfish the target into meeting at a restaurant, then seize their car in the parking lot while they waited for their imaginary date inside. Dennis says he learned from those encounters how the prospect of a sufficiently enticing reward—namely, sex—can switch off a target's rationality. "You temporarily overload their brain with excitement,"

Private investigator Brad Dennis in his Honda Civic at night near Seattle.

"I BELIEVED," DENNIS SAYS, "THAT I WAS THE PERFECT PERSON TO TAKE THIS GUY DOWN."

he says, "and you can then get them to do things."

Eventually he transitioned to the lower-stakes field of tracking down the subjects of divorce proceedings and lawsuits to hand them legal papers. But Dennis, an anxious and private person, hated the work of physically confronting often-dangerous deadbeats. Then, in 2020, the pandemic hit. Courts closed. Unhappily married people held off on divorces. His work dried up. He sold his car to give himself time to establish a new line of employment.

One of Dennis' favorite Twitch streamers at the time was a gaming celebrity who'd been careful never to reveal his location to millions of fans. On a lark, while casting about for another livelihood, Dennis checked to see if he could track the streamer down using his skip-tracing skills and some scant online breadcrumbs. When he succeeded, he decided to approach the Twitch celebrity and offer to help him clean up his digital profile. Dennis says the streamer took him up on the offer and hired him as a security consultant—then began to refer him to other Twitch streamers. By early 2022, he had around half a dozen clients.

As Dennis expanded his Twitch connection into a budding career, he came to realize that swatting, a source of his own trauma, had plagued video game streamers for years. In many cases, Twitch stars had even been swatted in the midst of their livestreams, thrown to the ground by cops and held at gunpoint.

A few months later, one prominent streamer was brutally swatted—pulled out of his home by police with guns drawn while his wife and baby were inside—and reached out to Dennis for help. Within a week, Dennis' original Twitch streamer client was hit too. The two streamers pooled together a five-figure sum to hire Dennis as their private investigator, asking him to find out who was responsible.

Dennis had never expected to be drawn back into the swatting underworld—one that he had, in fact, spent years working to escape. But he felt he now had a duty to protect his clients. And, he told himself, he had helped the FBI identify a serial swatter before. Maybe he had the right skills to hunt this one too.

"I believed," he says, "that I was the perfect person to take this guy down."

DENNIS' DETECTIVE work began with a post he found on Doxbin—an anarchic, fully unmoderated bulletin board where hackers frequently publish the private information of their victims or rivals to incite harassment. One user, "Ringwraith," had published a data dump that included an address for Dennis' first Twitch client, along with the address and phone number of the streamer's 75-year-old father.

"I am not responsible for what happens with this info," Ringwraith added with mock innocence. In other posts to Doxbin, the same account had broadcast the

home addresses of other targets and suggested that users enlist "prank call" services available on the messaging platform Telegram to troll them.

Dennis began scouring Telegram and quickly found one such "prank call" service with the name Nazgul's Swats. He knew his *Lord of the Rings* references well enough to understand that the Nazgûl, in Tolkien's world, are synonymous with Ringwraiths: ghostly, lethal figures that hunt the saga's heroes from the shadowy realm they inhabit. Were Ringwraith and Nazgul in fact the same person?

Nazgul's Swats, whose profile photo on Telegram showed a black-hooded skull mask, seemed to be openly advertising a swatting-for-hire service. The account priced its calls at $150 per swat or bomb threat, or $100 for hoax gas leaks or fires, to be paid for with the tracing-resistant cryptocurrency Monero. "All swats will be done ASAP," Nazgul wrote. "Prices will be negotiated if it's a major target like a semi-famous streamer or a government building."

As he watched Nazgul's Telegram account over the summer of 2022, Dennis was dismayed to see that the swatting service appeared to be shifting its focus from Twitch streamers to a more disturbing target: schools. In August of that year, the account posted a "Back-to-School Sale," with a special rate of just $50 in Monero for school swattings. "Do you want an extra day of summer break?" the post read. "I will shut down a school for the entire day!"

Not long after, on Telegram, Nazgul began posting audio recordings of school swatting calls. In one, targeting a high school near Toronto, the swatter claimed to be a supporter of QAnon, intent on destroying the school with explosives because of the "pedophile transgender" teachers there. In another, the swatter told an emergency hotline they were transgender and had been mocked by their fellow students at their high school in Washington state, and had taken their father's glock.

"I'm in the bathroom now, and I'm ready to take out the people who bullied me," the swatter told the dispatcher through a robotic, synthesized voice generated by a Google text-to-speech program. "The transphobes will die."

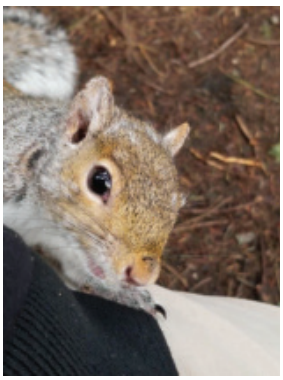
Two days later, Nazgul called again, this time telling dispatchers the earlier call had been a hoax meant to throw off the response to the actual school shooting now planned at the same high school that day. "It is too late for you to stop me. I have an illegally modified, fully auto AR-15 and glock with level-four body armor, and I'm right outside the school gates ready to shoot up your faggot-infested school," the caller said. He claimed that he had planted pipe bombs under administrators' cars and in classrooms that would detonate minutes after school started. "Afterwards I will walk in and shoot everyone I see. Goodbye."

The school swatting calls that Nazgul was posting to Telegram were only part of a growing wave hitting schools across the US in the fall of 2022, including more than a dozen hoax calls each in Minnesota, Louisiana, and Virginia. By November, the attacks had swelled to more than a hundred, hitting New Jersey, Florida, California, South Carolina, South Dakota, and Connecticut, seemingly at random. Dennis read news reports in which law enforcement officials blamed the calls on a group of Ethiopians. But he suspected that many of the swattings seemed to be the work of Nazgul alone.

Dennis reached out to an FBI field office in San Antonio, the closest location to one of his Twitch clients, in an attempt to persuade the bureau to investigate Nazgul. Identifying himself as a licensed private investigator, he described what he'd found in a breathless, point-by-point, 897-word email, laying out the evidence of how dangerous this particular swatter was becoming—and throwing in a few initial theories of the swatter's real-world identity that, he now admits, were all off base.

The San Antonio FBI eventually responded: It had no open case into Nazgul's Swats, didn't intend to create one, and didn't even offer Dennis a point of contact for any future findings, he says. "They gave me nothing at all," Dennis says. "Nothing."

Dennis was incensed. As he read news reports of the hoax calls sending schools into lockdown, terrorizing parents and children across the country, he began to feel like he was shouldering the full weight of the investigation. As long as Nazgul was free, it seemed, he would keep targeting more innocent victims. "From the moment he woke up till the moment he went to sleep, he was swatting people," Dennis says. "And I was going to do whatever it took to catch him."



Dennis taking a selfie with one of the squirrels he befriended.

COURTESY OF BRAD DENNIS

ED DORROH, a bearded and slightly grizzled detective with the Los Angeles Police Department, was out for dinner with his wife at a romantic wine bar in his hometown of Lancaster, California, when he got a text from a number he didn't recognize. The sender identified himself as a private investigator, a stranger who wanted Dorroh's help pursuing what he described as one of the worst serial swatters in history.

Dorroh had famously taken down a notorious swatter named Tyler Barriss, who placed a 2017 hoax call that resulted in the fatal police shooting of a man in Wichita, Kansas. Dennis knew Dorroh would understand the gravity of his case. Dorroh, for his part, did a quick background check from his phone to make sure Dennis was a legitimate PI, to the annoyance of his wife across the table.

The next day he called Dennis, who immediately began to share a deluge of information that conveyed his obsession with Nazgul and his frustration with the FBI's inaction. Dorroh knew the feeling: He'd often found it difficult to impress the seriousness of swatting cases on his fellow law enforcement agents. He'd once tracked a swatter to the UK who had threatened to have Dorroh's own family killed, then sent his findings on the suspect to a British agent—only to wait six months for the investigator to even look at the case. Dorroh agreed to help.

A week or two later, Dorroh searched through a law enforcement database with Dennis on the phone and found that the FBI's Bellingham, Washington, field office did have an open case on Nazgul's Swats. He connected Dennis with a responsive agent there named Rachel Bennett (not her real name). Dennis was mystified that the San Antonio office hadn't told him about the investigation. But from talking to Bennett, it seemed to Dennis that the FBI still had virtually nothing on Nazgul. (The FBI asked WIRED to anonymize the names of its case agents, out of concern that they could be swatted in retaliation.)

As he badgered the FBI, Dennis began the long, patient process of insinuating himself into Nazgul's inner circle—a familiar practice from his years of hunting car-payment debtors and vanished spouses. He created the persona of an aggrieved ex-husband obsessed with revenge following his divorce. Under the guise of that potential customer, he began sending initial messages to Nazgul's Telegram account, telling him he might need his help at some point and would be willing to pay.

"I AM NEVER GOING TO BE CAUGHT," TORSWATS SAID, HIS VOICE SWELLING AS IF HE WERE ALMOST MOVED TO TEARS. "I AM INVINCIBLE."

While Dennis searched for any revealing slip-up Nazgul might make, he would emerge into the light of the real world only to eat and caffeinate or to feed the squirrels that visited his apartment. At one point in his hunting, Dennis began to believe that Nazgul might belong to a certain "guild" in the online game *World of Warcraft*. Dennis became so determined to gain entry to that elite gaming group that he paid more than $1,000 to buy a leveled-up warlock character in the game, asked one of his gaming streamer clients to help him train, and spent more than 80 hours playing *WoW* to build credibility.

But by the winter holidays of 2022, none of this months-long undercover work had borne fruit. Dennis knew he needed to change tactics.

At some point, Dennis had read about an encrypted texting program called Tox. Although many hackers liked the service's security features, its peer-to-peer architecture meant that it could leak users' IP addresses to whichever contact they were chatting with, the equivalent of a phone call that revealed the address of the caller's home. Perhaps this combination of apparent security and actual vulnerability offered exactly the trap Dennis needed.

On the night of New Year's Eve, Dennis opened Wireshark, a program for intercepting and deconstructing network communications. Then he messaged Nazgul on Telegram using his aggrieved ex-husband persona.

"Yo, got some bidness to talk to you about," he typed to the swatter at 9:19 pm. This was the bait he'd lured in front of Nazgul for months, suggesting that he was going to pay grandly for some climactic act of swatting vengeance targeting his ex-wife. "You wanna make some real cash. Add me on Tox."

Dennis hit Return. Thinking back to the honeypot stings that had worked so well in his days as a repo man, he hoped the promise of a big payday would short-circuit his target's defense instincts. To help ward off any doubts, Dennis went to Wikipedia and carefully deleted a paragraph mentioning the IP-leaking bug from the page for the Tox protocol. Then he waited.

Less than an hour later, a notification popped up on his screen: A user named "Paimon Arnum" wanted to chat on Tox. The username was unfamiliar to Dennis. But he knew who it must be. As he accepted the chat invitation, Wireshark began capturing dozens of network requests. All of them came from a single IP address.

Dennis had his breakthrough. A fresh pseudonym tied to Nazgul's Swats and what he believed was an actual IP address might be revelatory new threads for him and the FBI to pull on.

Not long after, Nazgul's Swats added yet another moniker to the mix, inexplicably changing his Telegram username. Dennis didn't know whether this additional handle was a reference to the anonymity software Tor—which the swatter didn't appear to use—or to a Norwegian spelling of the Norse thunder god Thor. But from then on, Nazgul would go by a new name: Torswats.

IN LATE January 2023, Brad Dennis watched through his Ring camera as two FBI agents stepped onto his doormat that read "COME BACK WITH A WARRANT" and rang his doorbell. He opened the door, which was affixed with a sticker that read "BEWARE OF DOG," though Dennis had never owned one.

Dennis and the two visitors, FBI special agents Rachel Bennett and Lucas Phillips (also not his real name), sat down around a beat-up coffee table. On it was a large, tattered copy of the *9/11 Commission Report*, Dennis' only coffee-table book. The only decoration on the walls was an American flag hung behind a desk chair. Nearly a month after the holidays, a fake Christmas tree with a single ornament in the shape of a pickle stood in a corner of the room. Resting against it were two printed photos of Dennis' favorite squirrels, Jesse and Alvin, gifts from his mother.

Dennis did almost all of the talking, briefing the two FBI agents on his months of detective work. In fact, he couldn't stop talking: He had just drunk a Red Bull and was far too caffeinated. At one point Phillips noticed *World of Warcraft* on Dennis' computer screen and commented that he played the game too. Throughout the meeting, some of Dennis' squirrels hung out on the patio, munching on unsalted peanuts.

When the two agents left Dennis' apartment 45 minutes later, they carried with them a USB drive that contained the network data Dennis had captured with Wireshark, documenting the IP address leaked in his Tox chat conversation with Nazgul.

Dennis sensed that the Paimon Arnum handle—a possible reference to one of the kings of hell in demonological texts—was also a powerful data point. The FBI hadn't known about the new name until he shared it with them. When Dennis had searched for Paimon Arnum, he found a YouTube account with the same username. Checking an archived copy of the account, he found that it had once been named Ringwraith and had used a similar Nazgul picture as its profile image. Even if the IP address he'd shared with the FBI was some sort of proxy that Torswats had used to cover his tracks, he thought perhaps a subpoena to Google could reveal this account's subscriber information. More than ever before, Dennis felt real hope they had solid leads on their target.

In the weeks that followed, Dennis and Agent Phillips would text and email each other updates. But as the weeks went on, Dennis started to get impatient. He called Phillips to ask about the subpoenas to Google and other services Torswats had used.

As Dennis recalls it, Phillips told him that the results still hadn't come back. Dennis asked how it could be taking so long: Hadn't Phillips filed emergency requests? Google and other major tech firms typically responded to those in a day or less. According to Dennis, Phillips said that he had filed the requests as normal subpoenas, explaining that was the bureau's policy, and this wasn't necessarily an emergency case.

Dennis blew up. *You motherfucker*, he remembers thinking. For months he had been watching TikTok videos of school swattings, torturing himself with clips that students had recorded and posted of themselves hiding in school bathrooms and jumping over fences to escape from imagined shooters. "He's literally sending out police officers to people's houses and into schools with their guns drawn," he says he told Phillips. "How is this not an emergency?"

Not long after, Phillips told Dennis that he had sent the emergency requests. The FBI agent soon began to share hints of the results with Dennis. Sure enough, the bureau now had an IP address for the Google account, one that located the user at a residential internet connection in California.

It seemed the FBI now knew Torswats' name and address, though Phillips wouldn't share those details with Dennis. It was only a matter of time, Dennis now felt, until the target of his hunt was behind bars.

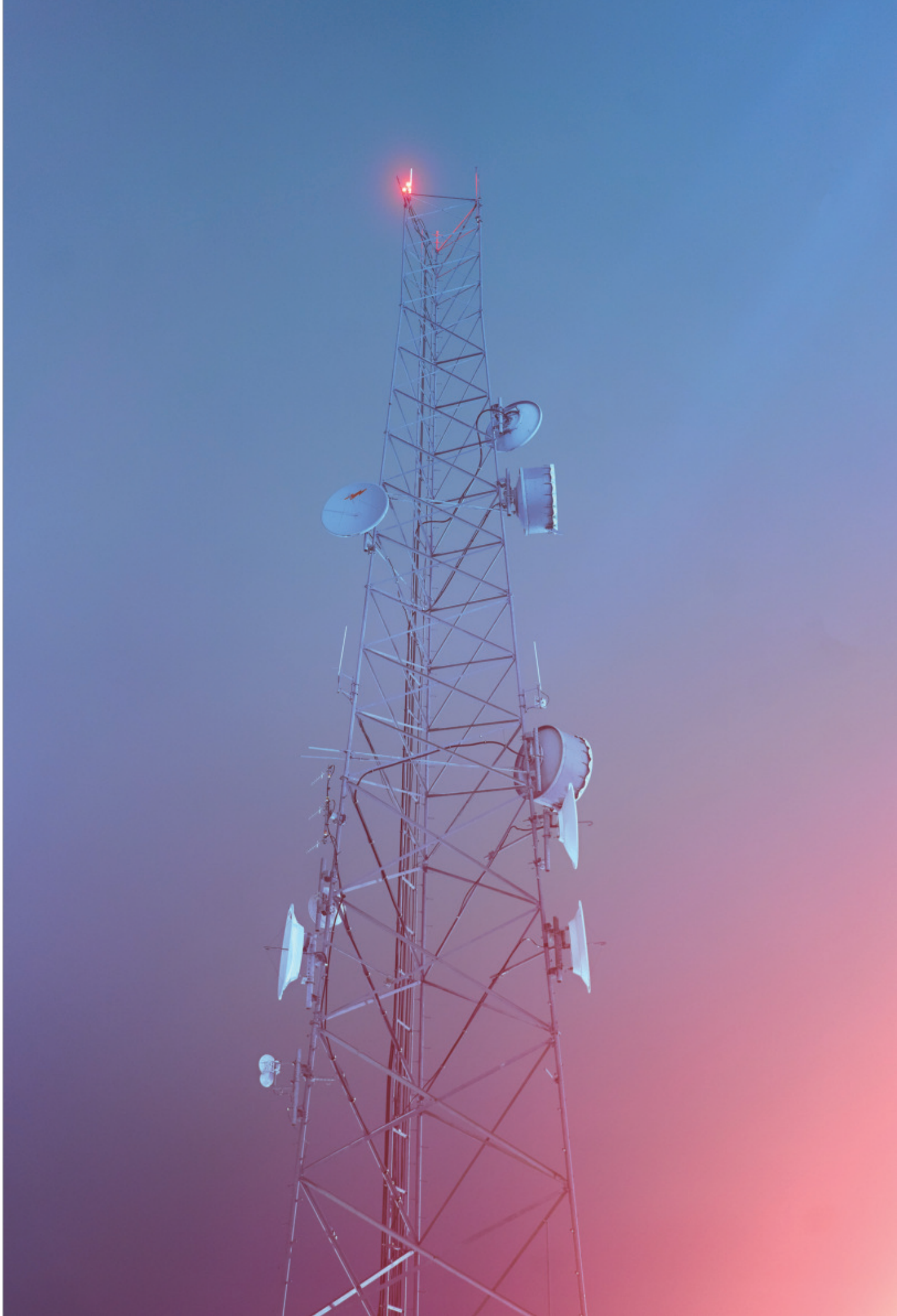
In the meantime, Phillips had asked for Dennis' help in locating and then infiltrating a channel on the chat service Discord that Torswats visited. The group, an offshoot of a larger movement that called itself 764, turned out to be one of the most disturbing and abhorrent corners of the internet, catering to its most callous trolls and sadists. Its members, from what Dennis could tell, seemed to be constantly working to outdo one another with racist memes, child sexual abuse images, animal cruelty clips, and sextortion videos in which members of the group blackmailed children into humiliating or harming themselves, sometimes with razor blades or nooses shipped in the mail to their victims.

A radio tower at the Spokane Regional Emergency Center.

Dennis says he saw things in the channel that he wishes he could remove from his memory, that make him physically sick to recall, including one image of child sexual abuse that has horrifically and unpredictably flashed into his mind every day since. "I didn't even know this kind of evil existed," he says.

Dennis stumbled into darker and darker layers of the internet as he stalked Torswats, all the while waiting for updates from the FBI on when exactly the swatter would be arrested or have his computers seized. At one point Phillips told Dennis that the FBI wanted to be "extra careful." But Dennis was beginning to lose his patience and his trust that the bureau was taking the case seriously.

"I can't believe he's just walking around free. Even tho we know who he is. Please for the love of god just take him down already FBI," Dennis wrote to a WIRED reporter on May 6, 2023. "They have enough for the warrant. Good. Write it. Execute it. Done. Every day they wait is more kids being hurt."



FIVE DAYS later, on the morning of May 11, Tanner Zahrt, the principal of Port Angeles High School, on Washington's Olympic Peninsula, heard the scream of sirens approaching. Moments later, an assistant principal came into Zahrt's office and told him that the police had just called: An active shooter was on the school grounds.

Zahrt scrambled across the hall to the room where the school's intercom was set up. He spoke into the microphone, trying to broadcast a message telling the school to lock down. Silence. The intercom system wasn't working. As fast as they could, he and the assistant principal assembled the school's administrators and asked for volunteers to run to the school's 13 buildings—a uniquely sprawling, tough-to-secure outdoor campus—and deliver the lockdown warning. Zahrt knew he was asking these volunteers to risk their lives. But he felt he had no other option: Every second might mean more students' lives lost.

When the volunteers dispersed, Zahrt ran back to the intercom. After several minutes, he got it to sputter to life. "There's a threat on campus. We're going into lockdown, this is not a drill," Zahrt said into the microphone, trying to keep his voice calm. "Lockdown, lockdown, lockdown."

Police officers soon arrived in Zahrt's office and played the recording of the 911 call that had brought them: The same deep, languid voice that police dispatchers would hear in a dozen or more counties by the end of that day. Torswats had, by this point, stopped using the text-to-speech software for his swattings; he had discovered his own ghostly and unnerving voice was far more effective and credible. Each call was a variation on the same theme: "I'm going into the school with an AK-47"—or an AR-15, or a glock, or pipe bombs—"and I'm going to kill everyone I see."

The recording Zahrt heard ended with the sound of a school bell. He immediately recognized that it was the wrong one. "That's not our school bell," he thought. But even as he began to suspect a hoax, the officers warned him that it wouldn't yet be safe to give the all-clear.

Instead, for the next 50 minutes, teachers barricaded their classrooms as students hid in "hard corners," out of any potential shooter's sight lines, while police carrying automatic rifles scoured the school, classroom by classroom. Some students, jaded from false alarms and drills, joked and texted with friends. Others hid in silence. Some, says Zahrt, had panic attacks.

By this point, Torswats had moved into the second day of his blitz against the state of Washington, a target area he'd seemingly chosen at random. It was the culmination of a spree that had begun 24 hours earlier with the eastern part of the state—including the "shots heard!" call to Spokane.

For Sarah Jones, the trauma of that call lingered well beyond the hour it had taken for police to officially declare a false alarm. When her shift was finally over, Jones had burst into tears in the arms of her supervisor. On her drive home, she couldn't stop crying. That weekend she went on a run to try to exorcize the sound of Torswats' horrifying voice. But she says she can still hear it, even now, a year and a half later. She says she'll remember the call "for the rest of my career."

All told, Torswats hit as many as 45 schools in Washington state—then moved on to new targets. As he did, his hoaxes grew more florid in their descriptions and graphic in the horror of the threats he was inventing.

"I just finished reading the devil's Koran," he told one dispatcher as he explained why he was about to commit a mass shooting at a mosque in Florida with an "illegally modified, fully auto AR-15" as well as a glock and Molotov cocktails. "It is a false mosque that prays to the demi-urge Saturn," he added, before hitting his usual last note that he was about to "kill everyone I see."

"I took DMT this morning. And I saw Satan," Torswats told another young woman a few days later after she picked up the phone at Prairie View A&M University in Texas, one in a series of historically black colleges and universities that he had added to his target list. "And he came to me in the form of a serpent. And he told me to put explosives—he told me to put the fragmentation pipe bombs I had made for him inside of stuffed animals that resemble snakes, and he told me to put them in the ceilings and in the trash cans around campus. There are about two dozen total."

In the midst of another call that spring, this time with a high school resource officer in Maryland, the officer interrupted Torswats in the middle of a bomb threat and told him he would find his IP address and make sure he was criminally charged.

In response, Torswats paused, seeming to break character and stifle ecstatic laughter.

"I am never going to be caught," he said finally, his voice swelling as if he were almost moved to tears. "*I am invincible.*"

DENNIS' WORK was over. He had, he felt, given the FBI what it needed to close the case. Yet he was still watching Torswats post evidence of his ongoing, near-daily swattings to Telegram. The mental dissonance had become almost unbearable.

As the waiting wore on into summer, he began his annual transition to nocturnal life. He went for walks on the trail behind his apartment, sometimes in pitch-black so complete that he couldn't see his hand in front of his face. On his nighttime drives, he says he'd sometimes reach speeds of 145 miles per hour, so fast that other cars on the highway seemed to be standing still.

All the while, Torswats was still escalating. By July, he'd begun to write on Telegram about something he called "the Grand Offensive": He posted an incoherent chart of his planned targets, including 25 senators, the FBI, the Pentagon, and the board of directors of the asset management firm BlackRock. "One Swatter to Rule Them All," his chart read in one corner. He followed up that graphic with a rambling, racist, antisemitic manifesto written as an ironic ode to US law enforcement. "They are the guardians of our luciferian light, the defenders of justice, and the pillars of our society," it read. "God bless America's sword of domestic

combat to preserve its judeogovernance."

Around 10 am one morning in July, Dennis was coming out of the drive-through at Taco Time, one of few restaurants in the area that would serve him dinner food at a normal person's breakfast time. His phone rang. It was Phillips. Dennis took the call on speakerphone without pulling over.

An FBI team, Phillips told him, had just executed a search warrant at Torswats' home in Lancaster, California—by coincidence the very same town that had been home to the veteran LA detective Ed Dorroh, Dennis' first fruitful contact in law enforcement. The agents had given their suspect the full SWAT treatment, Phillips told Dennis: A Bearcat armored vehicle had torn the door off its hinges. Agents had used flash-bang grenades to surprise and stun everyone inside the home before searching it and seizing Torswats' PC.

The computer was encrypted, Phillips told Dennis, and might be useless for obtaining evidence. But Dennis was nonetheless thrilled that the same militarized police apparatus that Torswats had weaponized for a year had finally hit him back with karmic retribution.

Phillips was there at the raid, he told Dennis. Torswats had turned out to be a teenager, he said, and Phillips had heard his voice: The slow, deep, almost sedated drawl that had become all too familiar to both of them. There was no mistaking that they had found him—though after searching the house and seizing his computers, they still didn't arrest him.

At the end of the nearly 40-minute conversation, Dennis says, Phillips informed him that the Department of Justice planned to shop the case around the country to find a district willing to charge the suspect as a minor—possibly in Texas, Oklahoma, or Florida.

Dennis arrived home, sat down at his desk, ate his chicken burrito, and texted one of the Twitch streamers who had first hired him to hunt Torswats. "Search warrant was executed this morning," he wrote. "Mission accomplished."

"LOL. Fuck Em. What a relief," the client wrote back.

"Serves him right, little shit," Dennis responded.

He finished the burrito. At 1 pm, he finally went to bed, happy and fulfilled for the first time since he'd taken the case more than a year earlier.

AMERICAN POLICE REMAIN A HAIR-TRIGGER, MILITARIZED FORCE READY TO BE EXPLOITED BY ANYONE WITH MODEST TECHNICAL SKILLS AND A CONVINCING VOICE.

EXCEPT TORSWATS was still free—and somehow, still online.

"My current plan is that I will be temporarily retiring for several weeks," he wrote, just a few days after the raid, on a new account titled The Actual Fourth Reich of Torswats, adding that he would probably start offering his services on a dark-web marketplace in the winter of that year. Then he seemed to disappear for months.

Within a few weeks, Dennis' sense of victory had passed. By closing the case, he had put himself out of a job and was now underemployed and despondent. The fact that Torswats still hadn't been arrested, jailed, or charged—that Dennis still didn't even know his real name—made his triumph feel all the more illusory.

At loose ends, Dennis began spending nights in his Civic, patrolling the streets of Seattle's worst neighborhoods. He spent hours staring out of its tinted windows at homeless people and sex workers, trying to match their faces with missing persons photos from human trafficking cases, looking for any outlet for his detective skills that might give him a mission—a reason to continue.

Then, in November 2023, ahead of schedule, Torswats came out of retirement. In a new swatting call, the same deep voice affected a dopey, confessional air and warned dispatchers that a friend was planning a mass shooting that day at North Beach Junior/Senior High School in western Washington. "He showed me them. He showed me the pipe bombs," the voice intoned, adopting the usual themes as if there'd been no break in his now multiyear swatting campaign. "Afterwards he's going to come in with his AR-15 and kill everyone."

Torswats then targeted a former federal law enforcement agent and swatting expert—a man named Keven Hendricks who had recently been featured in an Economist interview about the relentless surge of swatting attacks. Torswats sent police to Hendricks' home and left a voicemail for Hendricks himself. "Hello. I just swatted you and your parents," he said. "That's what you deserve for being a filthy fed." He posted a photo of Hendricks on his public Telegram channel, his eyes blacked out and his address scrawled across the image.

On Telegram, Dennis could see that Torswats had reemerged. But the private eye had run out of outrage. He felt numb. He could no longer muster the energy to track Torswats' online boasting, to even feel angry at the FBI that it was allowing the swattings to continue. He was done.

Torswats, meanwhile, seemed to still believe he was untouchable. In December, he posted what he called The List, a kind of illustrated catalog of swatting targets—along with pictures of their homes and addresses. It included political leaders such as US senator Chuck Schumer, Chicago mayor Lori Lightfoot, and several judges, public health officials including Anthony Fauci, leaders of civil rights and anti-hate groups, and tech CEOs like Tim Cook and Evan Spiegel.

Then, between Christmas Eve and New Year's, came a new deluge of swattings. They hit close to a hundred politicians and law enforcement officials in a brazen, coordinated campaign: US Homeland Security secretary Alejandro Mayorkas, Cybersecurity and Infrastructure Security Agency director Jen Easterly, Republican representative Marjorie Taylor Greene of Georgia, and Republican senator Rick Scott of Florida. One of the hoax calls, court documents would later state, caused a car accident that resulted in serious injuries.

But this time, the voice on the calls wasn't Torswats. Instead, according to US prosecutors, he orchestrated the operation, providing the names, addresses, and phone numbers of the targets to a 21-year-old and a 26-year-old from Serbia and Romania who allegedly organized and carried out the swatting scheme with lines Torswats fed to them.

It was a familiar script. "I shot my wife in the head with my AR-15," a man identifying himself as "James" said in one such call, targeting the home of Georgia state senator John Albers. He told dispatchers that he had caught his wife sleeping with another man and, after killing her, had taken the man hostage. "I'll release him for $10,000 in cash," he added, threatening to detonate pipe bombs and blow up the house if his demands weren't met.

Finally, Phillips called Dennis and told him that the FBI had a plan to arrest Torswats. And they needed Dennis' help.

According to the plan, the bureau would ask its teen suspect's father to come in to a local police station to retrieve the computers they'd seized. While the father was there, Phillips explained, Dennis should use his old aggrieved ex-husband persona and start another Telegram conversation with Torswats about swatting his ex-wife. Then he should stall for as long as possible to keep Torswats at his computer, logged in to his accounts—so police could burst in and arrest him. Dennis, despite being sick with Covid, agreed.

Instead, to his and the FBI's surprise, Torswats accompanied his father to the police station to pick up his devices. The cops quietly arrested him on the spot. As his nemesis was finally taken into custody, Dennis was too ill to celebrate.

The FBI and Justice Department both declined WIRED's request for comment, which included questions about why the FBI had taken so many months after learning Torswats' name—even after searching his house—to arrest him.

COURTESY OF SEMINOLE COUNTY SHERIFF'S OFFICE

Nearly two years into his investigation, Dennis finally learned the teen's name: Alan Filion. He saw photos of Filion for the first time and mentally replaced the image of Dshocker's face with that of the actual alleged swatter teen he'd been hunting. Like Dshocker, Filion was big. He had long, lank brown hair. In photos, he wore a wide-eyed, innocent expression.

At the time of his arrest, Filion was 17 years old. When Dennis' case had begun, Filion had been only 15.

Filion fits the profile of plenty of online delinquents. He, like Dennis, appeared to have grown up online, finding community in niche forums more than the physical world. His high school years were defined by the isolation of pandemic lockdowns. According to Lancaster's Antelope Valley community college, Filion started pursuing a degree in mathematics in the fall of 2022 after graduating from high school early. But a professor at Antelope Valley could hardly remember him at all. One person who knew him says he was quiet and "forgettable," with few friends.

A person claiming to be Filion's friend alleges he was part of a group aiming to incite racial violence and that he sought money to "buy weapons and commit a mass shooting." An anonymous tip, submitted to the FBI's Internet Crime Complaint Center and obtained by WIRED, alleged that the individual behind the Torswats account was involved in a neo-Nazi cult known as the Order of Nine Angles. The tipster claimed he believed Torswats' actions were contributing to the "end of days" by "bleeding the finances and man-hours of the system."

In a May interview with WIRED, Torswats admitted that he made his hoax calls partly for fame and partly for political reasons. "It's taking money that would normally be used for welfare checks to Jews and to bankers and to oligarchs," he said in his drawl, "and it's being spent on searching schools."

Dennis, for his part, has settled on a simpler theory to explain Torswats' behavior—and the entire scourge of swatting as a means to blindly terrorize strangers. He defaults to the same principle he used to explain why Dshocker swatted him nearly two decades earlier.

"Power," Dennis says. "Because they can."

IN NOVEMBER, just weeks after his 18th birthday, Filion pleaded guilty to charges stemming from his nationwide spree of swatting calls. He faces up to 20 years in prison for four counts of making interstate threats to injure another person. As of mid-December, the teenager is awaiting sentencing in a Seminole County, Florida, jail cell.

Dennis remains in a different form of purgatory. On a recent night, when a WIRED reporter visited him, he went through his usual routine: he ate breakfast, checked his email for leads on work, played the video game *Rocket League*, and idled aimlessly around his apartment. Throughout the evening, he carried a loaded glock in a holster, a round in the chamber, no safety. He drinks Red Bulls every two hours, exactly, now timed with alarms on his phone, to space out his caffeine intake. He no longer gets visits from the squirrels. He can't be sure, but he believes that his favorites—Jackie, Jesse, Alvin, Doug—have died of old age or been killed by other animals. Dennis doesn't have it in him to befriend new ones.

On one of his nighttime drives through Seattle's skid rows, he recently spotted an 11-year-old girl near a Krispy Kreme. He recognized her from a poster of missing and exploited children. She approached his car thinking he might be a customer; he then helped local police to find her and reconnect her with a foster family. He's proud of that, just as he's proud of having cracked the Torswats case. But he has received little recognition for either, from police agencies or the FBI. His paid work as a private eye has largely evaporated. To stay afloat, he has sold off possessions—including the very computer he used to find Torswats—and for a time took up driving for Uber Eats. "It's been the worst year I've had in a long time," he says.

In the meantime, Dennis has watched in dismay as swattings—and school swattings in particular—have continued to spread across the US. There's been no new Torswats, no single, prominent villain who single-handedly represents the threat. But nor has there been a shortage of new nihilist trolls willing to pick up where Torswats left off.

Dennis has no faith any of that will change. The US remains a country awash in guns, where the prospect of a mass shooting has become a pervasive, looming menace. And American police remain a hair-trigger, militarized force ready to be exploited by anyone with modest technical skills and a convincing voice.

If Dennis is hopeful about anything, it's that another high-profile case will come his way, one that will give him the same sense of purpose he felt during the Torswats investigation. As he drives around in the dark, he seems to hope that another monster will appear for him to hunt—that it might offer him a chance to repair his career and some part of the world.

"Things will happen that will change the course of your life," he says from the driver's seat of his Honda as he peers out of the windshield at the North Seattle streets. "Things will reveal themselves."

DHRUV MEHROTRA *is a senior writer and investigative data reporter for* WIRED *covering surveillance and policing.* **ANDY GREENBERG** *is a* WIRED *senior writer and the author, most recently, of* Tracers in the Dark: The Global Hunt for the Crime Lords of Cryptocurrency.

Alan Filion's mug shot.

COLOPHON

Power structures that helped get this issue out:

Shunted cat litter cleanup and dishwashing chores onto the household's younger members; The Club at SFO's Terminal 1; negotiated for the internet repair guy to show up on time; called in favors as soon as they were offered; free wine for friends (and nice strangers) when they visit our family wine shop; rent control laws; flying to Chicago for a holiday lunch with a best friend to accrue premier qualifying points for 2025; the NOAA's National Tsunami Warning Center; one-upping the big corporations and swapping credit card points for business flights and luxury hotels; *On Tyranny: Twenty Lessons From the Twentieth Century*, by Timothy Snyder.

WIRED is a registered trademark of Advance Magazine Publishers Inc. Copyright ©2025 Condé Nast. All rights reserved. Printed in the USA. Volume 33, No. 3. WIRED (ISSN 1059–1028) is published bimonthly by Condé Nast, which is a division of Advance Magazine Publishers Inc. Editorial office: 520 Third Street, Ste. 460, San Francisco, CA 94107–1815. Principal office: Condé Nast, 1 World Trade Center, New York, NY 10007. Roger Lynch, Chief Executive Officer; Elizabeth Herbst-Brady, Chief Revenue Officer; Jackie Marks, Chief Financial Officer. Periodicals postage paid at New York, NY, and at additional mailing offices. Canada Post Publications Mail Agreement No. 40644503. Canadian Goods and Services Tax Registration No. 123242885 RT0001.

POSTMASTER: Send all UAA to CFS (see DMM 707.4.12.5); NONPOSTAL AND MILITARY FACILITIES: Send address corrections to WIRED, PO Box 37617, Boone, IA 50037-0662. For subscriptions, address changes, adjustments, or back issue inquiries: Please write to WIRED, PO Box 37617, Boone, IA 50037-0662, call (800) 769 4733, or email subscriptions@WIREDmag.com. Please give both new and old addresses as printed on most recent label. First copy of new subscription will be mailed within eight weeks after receipt of order. Address all editorial, business, and production correspondence to WIRED Magazine, 1 World Trade Center, New York, NY 10007. For permissions and reprint requests, please call (212) 630 5656 or fax requests to (212) 630 5883. Visit us online at www.WIRED.com. To subscribe to other Condé Nast magazines on the web, visit www.condenast.com. Occasionally, we make our subscriber list available to carefully screened companies that offer products and services that we believe would interest our readers. If you do not want to receive these offers and/or information, please advise us at PO Box 37617, Boone, IA 50037-0662, or call (800) 769 4733.

WIRED is not responsible for the return or loss of, or for damage or any other injury to, unsolicited manuscripts, unsolicited artwork (including, but not limited to, drawings, photographs, and transparencies), or any other unsolicited materials. Those submitting manuscripts, photographs, artwork, or other materials for consideration should not send originals, unless specifically requested to do so by WIRED in writing. Manuscripts, photographs, artwork, and other materials submitted must be accompanied by a self-addressed, stamped envelope.

THE ASSIGNMENT: IN SIX WORDS, WRITE A STORY ABOUT AN INSECT REVOLUTION.

BUTTERFLIES SYNC WINGS. DISTANT STORMS AWAKEN.

—Neil Larsen, via email

Honorable Mentions

Every insect piloted a real human.
—@morgocomics, via X

Ants made mountains out of molehills.
—@andredoubleu, via Instagram

They're no longer scared of shoes.
—@bouncingseth, via Instagram

Cicadas rose, sang, and consumed all.
—@frater.greg, via Instagram

The mantises' prayers have been answered.
—@mrjasenewman, via Instagram

We're the children of software bugs.
—@hermanbessler, via Instagram

Grasshoppers sang; cities crumbled to dust.
—John Snyder, via Facebook

Want to submit a six-word story for us to consider? Look for the latest story prompt on X, Instagram, and WIRED.com/six-word, where you can also see how we have illustrated past favorites.

Disclaimer: All #WIREDSIXWORD submissions become the property of WIRED. Submissions will not be acknowledged or returned. Submissions and any other materials, including your name or social media handle, may be published, illustrated, edited, or otherwise used in any medium. Submissions must be original and not violate the rights of any other person or entity.

STORIES & SOUNDS FROM AROUND THE WORLD

CONDÉ NAST TRAVELER

WOMEN WHO TRAVEL

LISTEN AND FOLLOW WHEREVER YOU GET YOUR PODCASTS

Loro Piana

loropiana.com